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R. F. JOHNSTONE, Editor.

# THE MICHIGAN FARMER.

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## Ashes—Leached and Unleached.

We have had several letters sent in with a few months, making inquiries relative to the application of lime and the value of ashes, leached and unleached. Before treating of the application of ashes, it may be well to take a glance at their composition, and it will be found that a comparison of their composition will afford a key to their effect upon grain and grass crops in various kinds of soil. The ashes which are generally used by soap makers or by potash boilers, are from a mixture of several kinds of wood, and among these the oak, the beech, the maple, the elm and the white or bass wood are the prevailing in this State. The quantity of ash contained in wood when compared with the size and weight, appears slight, but nevertheless every one knows its importance. In a piece of White Oak for instance, weighing 100 lbs., it has been found by analysis, that it contains 31 per cent. of water, 69 per cent. of thoroughly dry wood, and when this dry wood is completely burnt, there remains only about one-fifth of a pound of ashes. The wood of the Black Walnut, likewise, when taken in the same proportion, is found to contain 45 per cent. of water and 55 per cent. of dry material, and this latter yields a little over one-third of one per cent. of ashes; at the same time it may be well to note that the ash of the dried material of the bark of this latter tree, was found to be equal to 4 to every 100 of the fresh bark, and in the white oak, the ash of the bark was found to be equal to 11.30 out of every 100 pounds of bark. A glance at the same kind of investigations, relative to some of the grasses, and the grain plants, will enable our readers to compare for themselves, the relation between the two kinds of vegetable production.

It has been found that clover gathered about the middle of June, when it was nearly 24 inches long, and in full bloom, contained in 100 parts 77.83 of water and 21 of dry substance, and that the ash was 1.77 of the whole.

In Timothy grass, gathered the beginning of July, when in full blossom, and of a height of 40 inches,

the water contained was 70.69, the dry matter was 27.54, whilst the proportion of ash was 1.77.

The same analysis when applied to the great staple of Michigan, wheat, shows that in 100 parts of the grain of ripe winter wheat, there are 1.46 per cent of ash, in the straw 2.66, and in the chaff 7.97, or in the whole ripe plant, about 3.70 per cent. of ash.

Indian corn, when cut about two months after planting, and at a height of nearly six feet, has been found in a stalk which weighed 5.184½ grains to yield about 52 grains of ash, or one per cent., and 4641 grains of water, the organic matter which incineration dissipated being but 491.

We might go on with all the other cultivated plants, and show in what proportion ashes exist in them, but those already mentioned will be enough for our purpose at present. It has already been stated that the common unleached ashes are the remains of the incineration of various woods. In the above remarks we have pointed out the proportion of ash which may be expected from certain quantities and kinds of wood. For instance, having found how much a cord of maple or of beech wood weighs, it can easily be calculated how many pounds of ashes it will yield, and as a bushel contains a certain number of pounds, it can then be estimated how many bushels of ashes any quantity of wood will yield.

When the ashes of the several woods and plants are submitted to the analysis of the chemist, they are found to contain mineral matters in certain proportions, and of these we give here a few examples, so that the composition of the ashes may be compared with that of the several vegetable productions, which are grown for profit. Of the woods we take the Hickory, the Sugar Maple, the Red Beech, the White or Basswood, the Swamp Oak and the Hemlock:

	Hickory,	Sugar Maple,	Red Beech,	Whitewood,	Swamp Oak,	Hemlock,
Potash.....	20.187	8.770	12.13	10.12	20.49	19.23
Soda.....	0.085	0.064	15.58	2.88	3.15	8.46
Chloride of Sodium.....	0.085		0.24	0.50	0.40	0.03
Sulphuric acid.....	4.640	1.171	0.47	0.85	0.00	3.03
Carbonic acid.....	21.405	37.247	24.39	16.64	32.92	7.81
Lime.....	27.695	31.860	31.82	38.36	30.23	10.11
Magnesia.....	8.600	8.400	5.44	7.30	0.53	2.43
Phosphates.....	11.450	8.200	19.01	21.75	5.20	20.47
Organic matter.....	2.400	1.50	2.53	4.00	2.0	
Insoluble Silica.....	6.150	0.500	1.45	2.10	1.50	1.65

By an examination of this table it will be seen that besides the potash and soda, there are a number of other substances, which are of equal value to growing plants, and which when reduced to the form of ashes are in a state ready to enter into the composition of the plant. In fact even when ashes are leached as perfectly as they usually are where potash is manufactured, there still remains a considerable proportion of potash in the form of a carbonate, or in combination with carbonic acid, and which even with the use of quick lime to aid in the separation, is not fully freed from the leached mass. After

the ashes are leached, to obtain the potash, therefore, there remains a mass of mineral matter for the growth of plants. Amongst these are the sulphate and carbonate of lime, a large quantity of phosphates, and especially the phosphate of lime, the chief element in the formation of bone, and the silicates, so useful to give strength and stamina to the straw of the wheat. In fact the leaching of the ashes only carries off one element, which is the potash, and not even all of that, while the mass is left still as valuable as a manure as it was before, especially for the growth of plants which do not need a large amount of that alkaline earth. For instance, let us take a look at the composition of the ashes of the several portions of the wheat plant, and it will be seen how useful leached ashes can be made when applied to this crop, especially upon soil where constant cropping has somewhat robbed the topsoil of the very elements which ashes contain:

COMPOSITION OF THE ASH OF WHEAT.

	Straw.	Chaff.	Grain.
Silica.....	49.100	50.60	5.225
Phosphates.....	19.600	8.80	60.725
Lime.....	3.469	4.70	0.050
Magnesia.....	0.324		2.880
Potash.....	22.245	1.60	7.100
Soda.....	5.195	3.20	17.115
Sulphuric acid.....	0.876	1.21	0.895
Chloride.....	0.121	trace	0.295
Organic acids.....			2.400

Here it will be seen that the same elements which are found in the wood are found in the straw, the chaff and the grain of wheat, though in different proportions. The chaff, it will be noticed, is very rich in silica, or the matter which gives it that brittle and shining hardness, for which it is remarkable. So with the straw which needs firmness; and whenever this element is wanting, there will be a complaint that the wheat has lodged badly. In the grain, however, only a small proportion of this element is needed to enter into the formation of the hard covering or bran of the grain. But the grain, it will be observed, requires an element which remains in leached ashes, and this is the phosphates. Note what a large proportion of this element is in the grain and how little in the chaff and in the straw. It must be taken into account also that the largest proportion of the phosphates required also, is the earth known as the phosphate of lime. In fact this earth in all parts of the plant, compared with all the other phosphates added together, is generally found in the proportion of 50 to 10. Potash, it will be seen, enters largely into the composition of the straw to the amount of one-fifth, while soda occupies as prominent a place in the grain. It will be seen, by a comparison with the ash of the woods, that not an element is missing. The carbonic acid combines with the silica, the lime, the potash, the soda, to form the compounds, in which each of these elements are found and thus enter into the formation of the plant. The silicates, of which larger quantities are formed during the burning of wood while clearing land than there are in the

laboratory of the chemist, adds very materially to the value of the leached ashes, where the straw has been carried off, and no return made.

It has been found by means of thirty-two analyses of the grain of wheat, that it gives a proportion 1.67 of ash out of every 100; and that in the straw there is a proportion of 5 10 to every 100. These proportions show that from an acre of land, which produces 25 bushels of wheat weighing 60 pounds to the bushel, there is abstracted about 165 pounds of mineral matter, of which the following is the proportion:

	In the grain.	In straw.	Total
Potash.....	7.49 lbs.	18.71	25.70
Soda.....	0.97	0.99	1.87
Magnesia.....	3.07	4.11	7.18
Lime.....	0.85	9.34	10.19
Phosphoric acid.....	11.47	8.15	19.62
Sulphuric acid.....	0.84	5.82	5.90
Silica.....	0.08	101.82	101.90
Peroxide of iron and los.....	0.24	1.2	1.51
Chloride of sodium.....	0.93	0.31	0.3
	25.00 lbs.	150.00	175.00

In leached ashes, such as are to be had throughout a large portion of the State, we have all these elements in a greater or less degree. These ashes generally contain a certain amount of water, and therefore though a bushel of them might weigh 50 pounds, we may estimate that at least 10 pounds consist of moisture, retained by them after being leached. Where ten bushels per acre are applied as a top-dressing to any crop, therefore, there is really somewhat less than 400 pounds of the dry ash, and this 400 pounds may be generally estimated as furnishing the soil with the following proportion of mineral manure: Lime, 230 pounds; phosphates, 60 pounds; potash and soda, 10 lbs.; silica, 10 lbs.; magnesia, 39 pounds; gypsum or plaster, 10 lbs.; other mineral matters, about 20 lbs. The application of these elements at a season when the plants are in full growth, and exercising all their powers in eliminating such material from the soil, has on nearly all soils a very beneficial effect, and except where the soil is fully charged with the inorganic remains of vegetable matter, we have never known ashes to be applied with other than good effect. Many, we know, fear to apply them because they deem them of no value after all their strength has been leached out; but this is an error, the leaching only removes one or two elements, and leaves at least 80 per cent. of valuable matter. Ashes, besides furnishing manure, have also a very beneficial effect in decomposing many of the insoluble and inert substances which are in the soil, and thus effecting a beneficial change. This is especially to be observed on light soils where clover and the grasses are sought to be introduced. But on this subject we shall have more to say in another number.

In conclusion, to afford our readers a more perfect idea of the value of ashes, whether leached or unleached, we quote from a late number of the Journal

of the Royal Agricultural Society, of England, the analyses of the ash of fresh farm-yard manure, made by Dr. Augustus Voelcker, the Professor of Chemistry in the Royal Agricultural College at Cirencester. The analyses made by this gentleman furnish the most remarkable results, and at the same time, we have to admit that they are the most profound and exact that have yet been made with regard to that important product, farm-yard manure. We shall refer to these investigations again, but in the meanwhile, in connection with our subject, we quote this analysis of the ash of farm-yard manure, that it may be compared with the ash which is left by the burning of our woods. It must be borne in mind that decomposition is only a slow combustion, and that eventually the ash is the only remains of any material that is subject to decay. Incineration furnishes the ash at once. Slow decay eliminates by degrees the organic elements which unite with certain elements, and leaves the ash which is used and absorbed as fast as furnished, and therefore the effects of the ash alone is hardly ever taken into account in the examination of the effects of manures. In the present analysis which we submit, the practical chemist understood the value of this point thoroughly, and his investigations are of the utmost value. We submit only, however, at this time, the analysis of the ash of fresh manure, that it may be compared with the ash of the woods which supply the leached and unleached ashes, usually employed in agricultural purposes, in this State. According to the analysis of Professor Voelcker, 100 parts of farm-yard manure, containing the usual proportions of horse, cow and pig-dung, about fourteen days old, have

Water.....	66.17
Soluble organic matter, which contains 0.148 of nitrogen.....	2.48
Soluble inorganic matter or ash which contains	
Soluble silica.....	237
Phosphate of lime.....	209
Lime.....	065
Magnesia.....	011
Potash.....	73
Soda.....	061
Chloride of sodium.....	030
Sulphuric acid.....	055
Carbonic acid.....	218 1.54
Insoluble organic matter, containing 0.494 of nitrogen.....	25.76
Insoluble inorganic matter, or ash, equal to	
Soluble silica.....	967
Insoluble do.....	561
Oxide of iron, alumina with phosphates.....	596
Containing phosphoric acid.....	178
Equal to bone earth.....	346
Lime.....	1120
Magnesia.....	143
Potash.....	099
Soda.....	019
Sulphuric acid.....	061
Carbonic acid.....	454 4.05
	100.00

Compare this with the analysis of any of the woods, and it will be found that the ash of barn-yard manure and any of the woods which furnish the ashes of the former, bear a remarkable and significant approximation which may be used to teach us how valuable ashes must be, and also why they are so useful.



### The Chinese Sugar Cane.

*Sorghum Saccharatum.*

The new plant known under the name of *Chinese Sugar Cane*, is at present attracting considerable attention, and so promising have been the returns from experiments tried with it since 1854, when it was first introduced, that the Commissioner of the Patent Office has procured enough of the seed to distribute a bushel to the several State Agricultural Societies, that its qualities may be fairly tried both north and south. As a quart of seed is amply sufficient to plant from an acre to an acre and a half of ground, this quantity of seed will afford every opportunity to test the plant in the several soils, and also according to the various methods of cultivation.

The *Sorghum* is a variety of the corn tribe, allied closely to the broom corn, and its seeds were originally sent from the north of China, to the geographical Society of Paris, by one of its correspondents named M. de Montigny. Another source of the seed of this plant is South Africa, from whence it was brought by a Mr. Leonard Wray, of London. Since it was first sent to Washington, it appears to have attracted attention, at first from reports made to agricultural societies in South Carolina and Georgia; and during the past year several reports have been made on its produce and cultivation, as far north as Minnesota. Still these reports in many respects are as yet unsatisfactory. Another season, however, will give a much better understanding of the capacities of this new plant to perfect itself in our climate, and of its utility either for feed or for the manufacture of sugar, molasses or alcohol, or even paper, for all of which purposes it is claimed that it is well fitted.

For the present we shall only refer to the habits of the plant, its mode of cultivation, with reference to feed and the production of sugar, and give a synopsis of the testimony already published in its favor, leaving to a future number the discussion of the art of manufacturing sugar, a subject that will naturally follow, after it is proved that the plant can be grown here for that purpose.

The Chinese Sugar cane, where it has been grown in the United States, has reached the ordinary height of Broom corn, which it very much resembles, and this similarity is constitutional, for where the *Sorghum* is grown for seed, care must be taken that it is not near Broom corn, both plants flowering at the same time, and are thus apt to hybridize the seed, and produce a bastard plant of little value. At the south the plant grows to the height of 16 feet, and one writer in Lumpkin county, Georgia, writes at the end of four months from the time he planted, the seed was fully matured, on stalks ten feet in height. The average range of growth appears to be

from 8 to 12 feet. A circular from the Patent office describes the plant thus :

"Its stems are straight and smooth, often covered with a white bloom, or down, having leaves somewhat flexuous, falling over and greatly resembling in appearance those of Indian corn, but more elegant in form. When cultivated in hills, containing eight or ten stalks each, it puts forth at its top a conical panicle of dense flowers, green at first, but changing into violet shades, and finally into dark purple, at maturity. In France and the central and northern sections of the United States, it has thus far proved an annual; but from observations made by M. Villmorin, as well as some experiments in our southern States, it is conjectured that, from the vigor and fullness of the lower part of the stalks, in autumn, by protecting them during the winter, they would produce new plants the following spring. It stands drought far better than Indian corn, and will resist the effects of considerable frost without injury, after the panicles appear, but not in its younger and more tender state. If suffered to remain in the field after the seeds have ripened and been removed, where the season is sufficiently warm and long, new panicles will shoot out at the topmost joints, one or more to each stalk, and mature a second crop of seeds. The average yield of the seed to each panicle is at least a gill."

The seeds resemble the seed of broom corn, except that they are of a shining black color, and glisten almost like glass beads.

As we do not yet know whether the plant can be grown here so as to ripen its seed, or whether it can be profitably grown for sugar, or whether it will pay to cultivate it for fodder, and as all these several uses of the crop may need a separate kind of cultivation, after the habit of the plant in our climate has been learned, we can only recommend such cultivation as will give the plant a fair trial. Should it be desirable to make a trial for the purpose of testing whether the seed would ripen here, a point which seems quite doubtful, it would be well to start a few plants under glass, by those who have facilities for that purpose, about the first week in April, and as soon as all fear of late frosts are over, then turn them out into the open ground, giving them the same cultivation as the field crop. Where it is desirous of testing the sugar-producing quality of the plant, a good piece of corn ground may be selected, precisely as for an Indian corn crop. The hills about three and a half to four feet apart, with three plants in each hill. A part of this planting might be set off to test the seed ripening quality of the *Sorghum*.

Where it is to be grown for fodder alone, it might be grown in hills three feet apart, with four or five plants in each hill, or in rows three feet apart, with the plants from ten to twelve inches from each other in the row. The summer and fall cultivation should be the same as given to an ordinary corn crop.

One of the excellent qualities of this plant, appears to be its habit of second growth. This is noticed both in the French journals which we have read, and



in the reports made by cultivators in this country. Wherever it has been cut, it has sent up a second growth, which in some places has attained a height of six or eight feet. This quality combined with its ability to withstand drouth much better than any of the common varieties of Indian corn, should render it a very desirable fodder plant for this climate, where stock generally suffer severely during the months of August and September from that cause. Mr. McKee, of Georgia, says, on this point:

"I am of the opinion the Sorgha Sucre is a perennial plant, and would grow all the time if there were no severe cold to kill it. It appears to surpass anything we can plant for producing fodder for cattle. There are commonly twelve leaves on a cane, and these measure on an average three feet long, and 3 1-2 inches broad. We commonly plant two stalks of corn in a hill. I had eight canes in the same space, each cane producing full as much fodder as one stalk of corn. At this rate, which is to me matter of fact, one acre of cane will produce as much as four acres of corn. But I am persuaded that I might have planted the cane in drills of three feet apart, dropping eight seeds in every space of eighteen inches, and by this means have eight times as much fodder as corn would produce.

"One head that I picked up at random measured three gills, and one gill contained eight hundred seed. I then selected a large head; measured it and found it to contain four and a half gills of seed. The 37 hills that I planted, produced three pecks of seed, this, after drying it two days in the sun, weighed 32 pounds."

In a late number of the *Journal d'Agriculture Pratique*, M. Gustave Heuze, Professor of Agriculture at the Imperial School of Grignon, states that the experience of the past year has shown that the Sorghum had produced on an average, at the rate of 60,000 kilogrammes of stalks, and 30,000 kilogrammes of sugar juice from each hectare of land; this is at the rate of 2½ tons of stalks per acre, and 24,500 pounds of sap. The juice or sap is estimated to contain fifteen per cent. of saccharine matter, and we find that Mr. Peters, of Georgia, in his experiments, from a measured eighth of an acre, obtained 3315 canes, which yielded 250 gallons of sap, and which boiled down made 58½ gallons of syrup, equal to the best New Orleans, or a yield of nearly 18,000 pounds of sap per acre, and 32,000 pounds of stalks. From both these statements the conclusion is drawn that the stalks produce just about one-half their weight in sap, and that this sap will yield of syrup about 4½ per cent.

The editor of the *Farmer's Cabinet*, who lives at Amherst, New Hampshire, gives his experience as follows:

"We have frequently alluded to our experiment in raising the Chinese sugar cane, from seed received at the patent office. We are entirely satisfied that it can be raised with great profit in this locality, either for fodder or for the making of sugar or molasses. We have in a small way tested it for both, and think we can satisfy the most incredulous that

our farmers can raise molasses and sugar to better profit than they can either corn and potatoes. Our seed we received late, and planted after corn was generally up. When about a foot in height, it encountered a violent hail storm, which seriously damaged it, and hindered its growth, so that it is doubtful whether the seed is sufficiently ripe to be reliable. Preferring securing the seeds to experiments in sugar making, we allowed our cane to stand beyond the proper season for the latter purpose, and after gathering, it stood several weeks before used.

"Last week, finding election over and no firing to do, and but little to interest us in the papers, we essayed to convert the products of six hills, planted like corn, into molasses. Pretty sport for an editor! but our motto is, anything to save our country! and so at it we went—and a sweet time we had of it—better than wheeling apples, we reckon, and the process and result we give for the benefit of mankind in general. We run thirty-two stalks through a hay-cutter, and with our standing-press and a cheese hoop, took therefrom three quarts of clear and rich juice, which being boiled to the consistence of sugar-house molasses, yielded one pint. The flavor is very agreeable, and the color and appearance nearly that of honey; and it is the universal opinion of those who have tasted it, that it is superior to any southern molasses."

A writer in the *Journal of Commerce*, N. Y., does not speak favorably of its sugar-making qualities, and this is a point which it would be well to settle before going to any great expense for apparatus. He says:—

I had occasion, on a recent tour through Germany, to see a luxuriant field of this plant, which was raised by an intelligent manufacturer of beet root sugar in the South of Germany; but, after experimenting on the cane, this gentleman told me that he was much disappointed in finding that but a small per centage of sugar could be crystalized out of the juice, and that by far the largest proportion remained amorphous sugar or molasses.

I regret that I cannot give the exact proportions of this experiment, but the person who made it assured me that, in his opinion, the Chinese sugar cane could not be profitably worked into crystalized sugar, on account of the large quantity of molasses contained therein.

How far does the experience in China or in this country controvert this fact?

We have not yet seen anything but what seems to confirm this opinion; very good molasses, but no sugar has been made.

The *Illinois Farmer*, published at Springfield, gives the following account of a successful experiment with the Chinese Sugar Cane:

"Last spring we received some seeds of this cane from the Hon. T. L. Harris, and we distributed it to individuals scattered in different parts of the State. We have only returns from one parcel of the seed thus disposed of. Mr. J. Patterson, residing a few miles from this city, on the Jacksonville road, planted the seeds given him, in good ground. They came up well, the plants grew rapidly, and perfected their seed. The plants have something of the appearance of the "Chocolate Corn," but it is a distinct variety. Several stalks sprung from one root, and a large crop can be raised from a

small stock of seed. Thus it appears that this Chinese Sugar Cane will grow to perfection in this climate, yielding a large quantity of stalks. Mr. Patterson procured some of the juice from the stalks in an imperfect manner, and manufactured it into syrup. The syrup was delicate, without strong taste, equal to any syrup from the sugar cane. Mr. Patterson has lived in Louisiana—is familiar with the cultivation of the sugar cane, and he says that a large amount of sugar can be made from the Chinese Sugar Cane.

From all that we have seen as yet relative to this plant, we are inclined to believe it will be a valuable addition to our farm crops; but we would not advise any of our readers to run away with the notion that the time had come for them to turn their wheat and wool growing fields into small sugar plantations.

### The Honey Bee, and how it operates—Honey, its Composition—Wax.

MR. EDITOR:—I desire to direct your attention, and the attention of your readers, to the following paragraph which has lately gone the rounds of the newspapers, extracted from the *Albany Cultivator*:

**ERRORS ABOUT THE HONEY BEE.**—The following remarks from the *Albany Cultivator* may correct some erroneous notions about the *modus operandi* of the industrious bee:

"Many suppose that the bee culls honey from the nectar of flowers, and simply carries it to his cell in the hive. This is not correct. The nectar he collects from the flowers is a portion of its food or drink; the honey it deposits in its cell is a secretion from its *mellific, or honey-secreting glands*, analogous to the *milk-secreting glands* of the cow and other animals. If they were the mere collectors and transporters of honey from the flowers to the honey-comb, then we should have the comb frequently filled with molasses, whenever the bees have fed at a molasses hogshead. The honey bag in the bee performs the same functions as the cow's bag or udder—merely receives the honey from the secreting glands, and retains it till a proper opportunity presents for its being deposited in appropriate store-houses—the honey-comb.

"Another error is that the bee collects pollen from the flowers accidentally while it is in search of honey. Quite the contrary is the fact. The bee, when in search of nectar, or honey, as it is improperly called, does not collect pollen. It goes in search of pollen specially, and also for nectar. When the pollen of the flower is ripe and fit for the use of the bee, there is no nectar in the flower. It is generally supposed, also, that the bee constructs the wax from which it constructs its comb from such vegetable substances. This is also an error. The wax is a secretion from its body, as the honey is; and it makes its appearance in small scales or flakes under the rings of the belly, and is taken thence by other bees, rendered plastic by mixture of the saliva of the bee's mouth, and laid on the walls of the cell with the tongue, very much in the way a plasterer uses his trowel."

The world is called upon by an *anonymous* writer to discard all the observations, and teachings, of all

the authorities, from the immortal Swammerdam, down to Kirby and Spence. Amongst the illustrious names of pains taking, intelligent, accurate observers, the name of HUBER, father and son, stands conspicuous! Swammerdam, not only described the economy of the Honey Bee, but he figured illustrations, obtained from his accurate dissections, to prove the truth of his assertions. In this course he has been followed by other and no less truthful men; but the Hubers! they made a speciality of all that concerns the honey-bee; to it, they devoted *two*

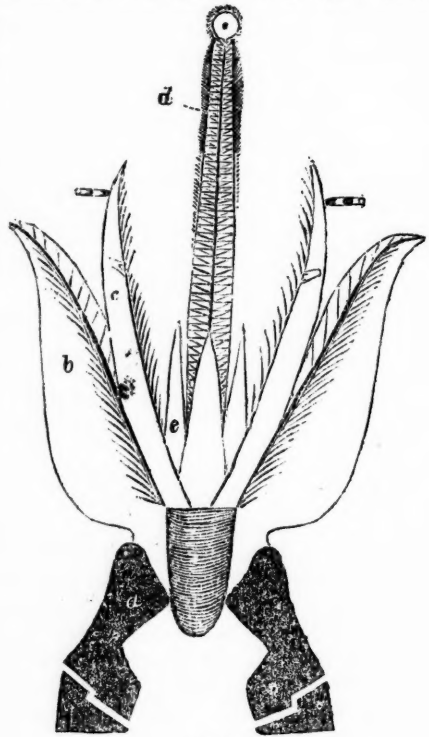


Fig. 1.

long lives, and the facts they collected have never been contradicted or denied, till now. Does this author attempt to inspire our confidence in his opinions by following the noble example (where truth is at stake) of Swammerdam, and show us copies of his dissection? No; he only offers his *ipse dixit*—a bold assertion—and without caring to lend the weight of his name, (if it have weight) publishes a rash, ill-considered opinion—*anonymously*. I too have dissected Bees, and more, the preparations are in my possession, and I intend to submit copies of some of them to the scrutiny of your readers. But I have never seen the "*mellific, or honey-secreting glands*;" will the gentleman kindly tell me where they can be found? Again, will he also inform me where the "*wax-secreting*" organs of the skin are situated?

I do not intend simply to meet assertion by assertion; but will offer engravings, copied from prepara-

tions in my cabinet, and will use them as the best exponent of the facts to which they alone testify.

Those persons who are acquainted with the structure of the nutrimental organs in animals, know the remarkable adaptation of them to the peculiar wants of individuals in respect to the *kind* of food upon which they are destined to subsist. In the higher animals, the form of the teeth, is alone a sufficient indication; and in insects, to say nothing of the thousands of species of animals intervening between man and them, the structure of the mouth is just as significant. As might be expected, there is always the most perfect conformity between the *internal* organs of nutrition and the mouth.

In illustration of this fact, the anterior portion of

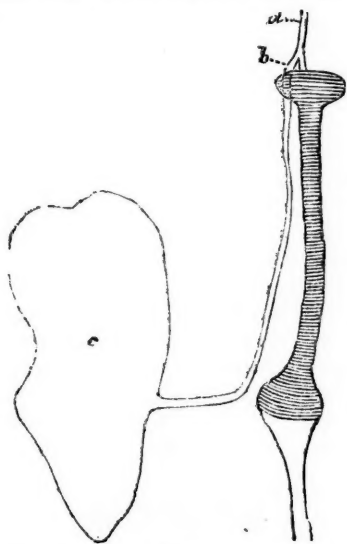


Fig. 2.

the head of the Honey-bee is presented, showing the entire *oral* apparatus, (parts of the mouth,) fig. 1.

- a, pair of strong corneous upper jaws, or mandibles, *without dentations*, (toothed processes).
- b, maxillæ, or under jaws, modified to form a sheath for the reception and protection of the inner organs.
- c, maxillary palpi, or jaw feelers, with jointed terminations at right angles to their plane.
- d, proboscis, or tongue, formed of the *labrum* (upper), and *labium* (under lip).
- e, paraglossæ, or little tongues, probably the analogues of the labial palpi (feelers of the under lip).

The strong horny jaws, common to all the Hymenoptera, are *not employed in the procurement of food, except under rare circumstances of peculiar difficulty*; thus, it sometimes occurs that a bee visits a flower whose nectary is inaccessible in consequence of its great depth and narrowness; it goes therefore, on the outside of a petal, which it *cuts through*, at its lower part, by means of these jaws, and inserting the exerted tongue through the divided petal, sips the

nectar. The Honey-bee rarely has occasion to do this, its smaller size permitting it to penetrate the depths of the cup; but with the solitary (Humble) bee, this practice forms the rule—its extreme robustness rendering it at all times difficult to reach the coveted food.

Still, the Honey-bee makes great and incessant use of these jaws; they are employed to knead and shape the wax, and constitute the chief instruments in constructing the cells.

The sole function of the under jaws has been explained.

The maxillary palpi are beautifully modified to meet a special want; by means of the small, jointed, right-angled terminations, they form the *hands* to hold back the petals of a flower, and keep them back so long as the tongue is occupied in procuring the nectar!

The instrument destined to perform this latter function is, of course, the elongated proboscis or tongue. A terminal disc will be seen, having a minute aperture in the center; this is the external aperture of a canal, which is a continuation of the oesophagus. No one appears to understand the use of the paraglossæ.

There is no other entrance to the mouth, save through the canal indicated; the animal can only consume *liquid* food, therefore *solid* particles of matter are entirely out of the question.

The fact of simply inserting a tube into a liquid, does not explain how that liquid is made to ascend, and the distance from the end of the proboscis, to the bee's stomach is considerable; moreover, in the first stage of ascent, the fluid has to travel *perpendicularly* upwards.

Besides the Hymenoptera, other insects are formed to subsist wholly on fluid food; the perfect insects amongst the *Lepidoptera*, and the *Dipterous* insects, come under this category.

If we examine their internal structure, we shall find an apparatus specially formed to raise, or *pump up* fluid aliment.

This is called emphatically the *pumping* stomach; in structure, it differs materially in the several orders of haustellate insects, but is best developed in the Diptera. A figure is offered, copied from a dissection of the entire nutrimental organs of *musca carnaria*, the flesh fly, but it is only necessary to show as much as concerns us in this connection and no more. Figure 2, at letter a, shows the oesophagus, which continues to the enlarged portion of the commencement of the crop, to which it is connected by a tube, really shorter than that represented, b. The tube, however, continues on, until it turns at right angles, and terminates in a large collapsed bag, c. This is the *pumping stomach*; in the living, or recently dead insect, this bag contains a small quantity of air; by taking off the pressure of the muscles of the chest,



the within contained air becomes rarefied, so as to fill to distension the bag, and as a consequence to exhaust the tube connecting it with the mouth, provided the latter be made air tight.

To accomplish this, the bees have only to plunge the end of the proboscis into the liquid nectar; so with the butterflies, while the Diptera make firm contact by means of their muscular, rugous lips.

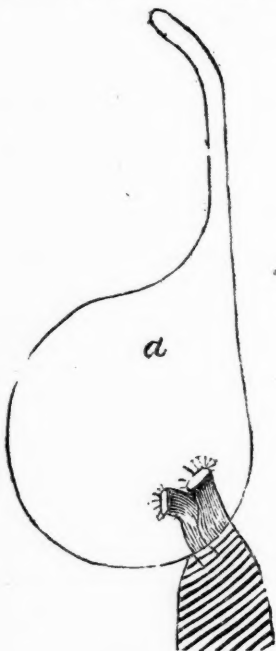


Fig. 3.

This point being complete, we will pursue the *modus operandi*: the instant the tube is exhausted, the fluid rushes up, until it reaches the short tube inserted in the crop; at this instant the pressure is resumed, and the fluid is suddenly driven through the short tube into the crop, where a valve is placed to prevent regurgitation; and thus the process continues, alternately action and no action, until the meal be accomplished.

In the Bees, and almost similarly in the Butterflies, the pumping stomach is not an independent organ, but incorporated with the intestinal tract, forming a crop; it is singularly enlarged, however, in front, as shown in figure 3, which represents the commencement of the alimentary canal of a bee. The distended portion, which performs the pumping function, is lettered *a*. The commencement of the stomach proper is shown by a projecting tube, with two distinct orifices thrust into the pumping stomach.

Our author remarks that "if they (bees) were the mere collectors and transporters of honey from the flowers to the honey comb, then we should have the

comb frequently filled with molasses," &c. Alas! alas! he has much to learn!

He evidently assumes that the honey in the comb is the nectar of the plant, unchanged! Did he ever know honey decompose; and if not, why not?—Housewives know how to preserve vegetable matter (fruits) for any length of time, chiefly by scalding it and killing the vital principle; so do the bees, their honey, and by a similar process. Before the nectar can reach the crop, it becomes thoroughly impregnated with saliva, the salivary glands opening into the oesophagus, and pouring an abundant secretion into that tube, so that it is insalivated honey that descends into the crop.\* Thus prepared, and impregnated, it lies macerating, or digesting in the crop, which is also the pumping stomach, until it be thrown up for storage in the comb. The digestion alluded to is only of a semi character, not sufficient to convert the honey into food, but sufficient to convert all substances, molasses or otherwise, provided they possess the required elements, into honey; and also for its preservation from decomposition. Man is the only animal who uses for food a substance which has already been altered and digested in the stomach of another animal—yet such is honey!

Wax is a vegetable principle, and not an animal product; no animal possesses the power of secreting wax. Bees are enabled to eliminate the wax contained in pollen, and stow it away between the rings of the abdomen, and in the hollows of the thighs.

The horny rings of the abdomen are destitute of glands, and such is true of the conjunctiva, or uniting skin.

H. G.

#### Agricultural Fairs.

MR. EDITOR—I propose to offer a few remarks in the *Farmer* in regard to Agricultural Fairs. The subject is one of importance to the farming community as to their management, and in consequence their utility. It seems to me that farmers in general are not awake to their interests in this respect as they should be. Too often is it the case that the control of these exhibitions is left by the farmers and mechanics, for whose benefit they were supposed to have been created, to those engaged in other objects and pursuits, and consequently, sooner or later, those things take precedence which are in accordance with the tastes and desires of those who have the control, to the exclusion, to some extent, of those interests contemplated by the organization at first.

The agricultural fairs of this State, both State and county, are supported in part by tax levied on the taxable property, and the remainder is paid by those who participate in them either as spectators or exhibitors. The expenses and premiums being paid

\*NOTE.—This article is already too long, and therefore no description of the properties of saliva, in the animal kingdom, can be given.

out of the funds derived from the tax as well as from other sources, it becomes the right and duty of every tax-payer to inquire into the manner of conducting the affairs of the society, and approve or condemn, as the merits of the case demand.

The law requires that the funds raised by tax shall be expended for the promotion of agriculture and the mechanic arts, by being distributed in premiums for the best articles or specimens exhibited. In the earlier history of the societies, their practice in this respect conformed to the requirements of the law. But in course of time, it was supposed to be necessary to introduce innovations and improvements, in order to keep up the interest.

And it is now considered necessary in some societies, in order to sharpen the public appetite for sight-seeing, and to induce susceptible young men and old men to part with their shillings, to introduce ladies on horseback, and place them on exhibition, to canter around a ring, for the edification of the people. By what sort of hocus-pocus an exhibition of this kind can be said to promote agriculture and the mechanic arts, is beyond my comprehension.

In one of the southern counties of this State, at its last fair, the committee on ladies' horsemanship, in their report, recommended a premium of thirty dollars value for the best performance of the kind at the next fair. In looking over the premium list of the society whose committee made the above recommendation, I find that the whole amount of premiums offered for the best cultivated farm, and ornamental trees, and the best vegetable and flower garden, and best fruit yard, does not amount to as much as is here proposed to be given for a display of horseback exercise.

Should said society adopt the recommendation of their committee, we might conclude, judging from their premium list, that they considered female equestrianism of more importance in agriculture and mechanic arts, than the above, or "butter, cheese, honey and bread," or "vegetables and seeds," or "flowers, drawings and paintings."

I do not wish to be understood as opposing female horsemanship; it is an accomplishment, if you please. At a proper time, place, and for a proper object, it is a healthful, graceful and useful exercise, better than thrumming the piano, or working dogs and cats in worsted, or reading novels, but when employed to raise money for agricultural fairs, the case is different. For this is one of the pleas for its introduction, that it tends to increase the funds by inducing those to attend who otherwise would not. But if the argument is good for anything here, it would be still stronger for a circus.

The fact is, if there is not sense and intelligence enough in the masses to be interested in the legitimate objects of such an organization, without the

aid of questionable expedients, the sooner it is abandoned the better.

I am aware that the views here expressed will be assailed with ridicule by the *fast* men connected with our fairs, and the inquiry will be excited as to what old fogey has gone to scribbling now. But if these remarks shall have a tendency to arouse the public mind to attend to this matter, and correct it, I shall have accomplished my purpose.

JUNIOR.

Lenawee, Dec. 21.

### On Cattle Feeding.

EDITOR FARMER:—Dear Sir:—In an article published in the January number of the *Farmer*, on the amount of food consumed by domestic animals in proportion to their live weight, &c., you refer to a communication of mine in vol. 14, page 138, on the cost, &c., of feeding a pair of fat cattle, and express a desire to know the exact amount of food given to them per day, for the purpose of comparing it with statements contained in the books on that subject. In reply I have to say that the object I had in view in the estimates I made, was not to ascertain the amount of food consumed in proportion to the live weight, but to arrive at the cost, as near as might be of fattening such a pair of cattle, and the profits thence arising.

Having fed, as farmers generally do, rather at random, through the forepart of the season, with no intention of making a calculation of the kind, I was in the end obliged to calculate backward from an estimate based upon the amount of food consumed at the close of the season. The meal I had measured all along—increasing it gradually as I found the cattle would bear it, until I arrived at sixteen quarts per day, as a full feed for each ox. As I increased the meal, I found the cattle consumed less hay, until I became curious to know what proportion there might exist in this respect. But as I reached the maximum of meal, I did not deem it judicious to reduce it for the purpose of experimenting, and was obliged to content myself with the simple fact, that an ox whose live weight would range from 2000 to 2300 lbs. consumed, besides the 16 quarts of meal, from 13 to 16 pounds of hay daily, which at \$10 per ton, would average 50 cts. a week. From this data I made my estimate backwards through the season; calculating the fodder during the fore part of the season at a less price as being composed in part of coarser and less valuable materials.

In regard to your question, "Can any of our readers tell how much they actually feed out, from the 15th of November to the middle of May?" I, for one, think it very doubtful. Farmers in general have but few, if any conveniences for ascertaining such facts; and a most profound ignorance prevails among them on this and other kindred subjects.

In the articles upon which you are now engaged, in relation to these matters, you are laying the farming community under many obligations—and I sincerely hope the time is not far distant when through the influence of agricultural schools and periodicals, a more enlightened state of things will be produced.

Respectfully yours, JUSTUS GAGE.

Dowagiac, Jan. 3.

### Potatoes—Seed cut—Grafting—Marshes.

ED. FARMER:—A few years ago I tried the experiment of so cutting potato seed, that only three eyes were put into a hill. I had that year an excellent yield of good potatoes. Afterwards, for several years, I neglected to pay any attention to potato seed. Last spring I saw a statement in some paper, I think the *Farmer*, telling of an experiment of one eye to the hill, which resulted well; so I thought I would try it, having six (to me) new kinds of potatoes to test, namely: Mexican Wild, Rough Purple Chilian, Carter, Hall's June, Early Mountain June, and a long flatish white kind, name lost. I had a quarter of an acre of land, descending to the east, lying up high and dry, which had been graded off some two feet, well manured, plowed and planted, and then, after crop was off, well manured again and plowed deep in the fall, late, one year ago last fall—left rough to freeze through the last winter. In the spring I dragged it level, and plowed very deep, and at a late season, cut my six kinds of potatoes, one eye to a piece, put one eye in a hill, twenty inches apart, and the rows three feet apart, all done with the hoe, surface removed say two inches for the seed, and covered two inches, and afterwards handsomely rounded up and the weeds destroyed. The result was an excellent yield of as delicious potatoes as I ever saw. As to comparative yield, Hall's June and the Early Mountain were first, and the long flatish whites and the Mexican Wilds were second best, in amount of yield. The long flatish whites were much the earliest, and at an early period were the best young potatoes I ever saw. In saying *best*, I mean driest and best flavored. The tops are quite small, and thoroughly dry long before any of the rest, or any of the common kinds were done growing. My object, mainly, in writing this is to call out, if I can, the experience and observations, and processes of others, that we may eventually approximate to a knowledge of what potatoes are most desirable to raise for our main stand by—considering yield and quality for the table. Now, according to the above experiments, the Hall's June and the Early Mountain June were the first in yield, and the Mexican Wild and the long flatish second best—all about as good at table as can be—but for early use, the long flats are decidedly best.

My conclusions in regard to amount of seed are, that one good eye in a place, say every ten or twelve

inches if in drills, or two eyes if two feet in rows, and three eyes where the hills are three to four feet apart, to be cultivated both ways.

A word about scions, budding, grafting, &c. T. T. Lyon, in his communication in the present (January) number of the *Farmer*, is doubtless all correct. I would simply add, that scions well kept may be used after the ordinary grafting season, for late top-grafting, both in nursery and orchard; also, for budding from the earliest that budding can be done, until the latest. I have now plenty of nursery and orchard trees, both grafted and budded in July and August, from scions cut intermediately from October till April, generally kept in cellar, in a pile of earth. I consider old buds kept thus, more lucky than most of the young ones, especially for early budding, when we are liable to have to use buds unmaturing.

In speaking thus of budding and grafting, I only include apples, pears and plums, other kinds I have not tried.

In regard to re-grafting or re-heading trees, especially large trees, one of the best plans is to lop off such limbs as are desired to be renewed in the spring, wax them over, and let them throw up sprouts which they will abundantly do, and then bud or graft those sprouts. The tree heals over better, and the graft or bud is not half so liable to blow out. All things are then more nearly as nature would have them, than if cleft or bark-grafted, and as to budding, it cannot well be done to large trees, unless so high up as to be undesirable.

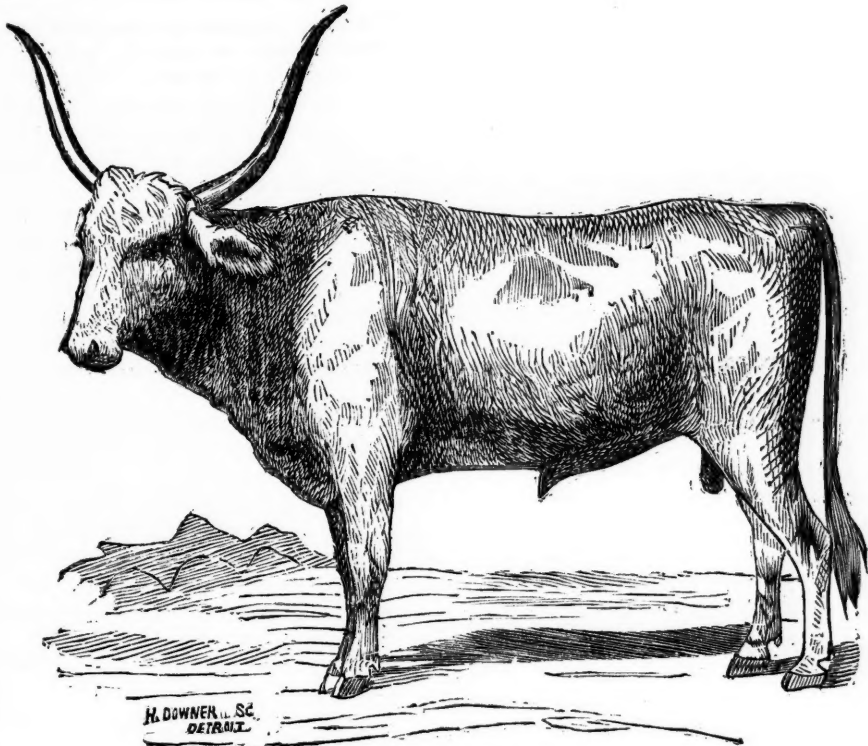
In your answer to "*Bradford*," in regard to what will grow best on his newly broken marsh, you might have added, *Buckwheat* for a part of it, as that article is among the best subduers of the native sod, and grows and fills as well as usual. Potatoes, corn, carrots, cabbage, and white turnips, do well. Rutabagas, parsnips and vines have not done so well with me. By all means cross plow it next fall into ridges, for the frost to act upon it, and the following spring, not to cultivate too flat, but keep it in distinct lands, each dead furrow open in both cases—fall and spring. It is easy, or possible to cultivate too flat on most marshes, especially if not blind ditched thoroughly, as we are always liable to freshets in spring, preventing early tillage in spring and even temperature in summer. Respectfully, J. T. WILLSON.

Jackson, Mich., January, '57.

E. McGuffin, of Iowa city, states that the Osage Orange in that vicinity withstood the hard winter of last year remarkably well, though for two or three days the mercury was 25 to 26 degrees below zero. In some of the hedge rows, the tops were cut off, but the plants came up thick and strong from the roots.

The "Early Dutch Turnip," of the Patent Office, is one of the earliest turnips yet introduced.





A Bull of the Hungarian breed, owned by the King of Wurttemberg.

### The Hungarian Cattle.

As we promised some time ago that in the present volume, we should occasionally present the readers, of the *Farmer* with portraits of individuals of the most remarkable breeds of European domestic animals, we place before them the likeness of a bull of the celebrated Hungarian race of cattle, and which is the property of the king of Wurtemberg. Some years ago, Mr. Fleischman, of the Patent office, commended this breed very highly, and Mr. Roswell Colt of Patterson, New Jersey, imported a pair of them. Their best point was their ability to travel with great speed, some of the oxen being able to walk as fast as a horse could trot. They do not strike us as having any qualities for which it would be desirable to cross to obtain them, and the engraving above will strike every one as being that of a coarse boned animal, of a habit not easily fattened.

These cattle of Hungary are closely related to the race which appears to be peculiar to all that vast tract of country which stretches from the Carpathian mountains eastward to the steppes of Tartary, and which extends from the Danube and the Black Sea, north to Moscow and St. Petersburg. They are not the same, however, having been modified in form, and evidently improved by cultivation, and by the superior care bestowed upon them by the owners of

the rich pastures, that lie along the banks of the Danube and the Theiss.

The Crimean, Podolian, or the cattle of the steppes, from which this Hungarian breed has had its origin, are generally short, thickset and strong. The head, neck and shoulders are large and prominent. The head is large, square, and the muzzle broad. The horns are large and spreading, and in the Hungarian race, of very great size, some of the oxen having them nearly two and a half feet in length. The ears are large, and set well forward. The neck is short, but strong, and the back slopes down from the point of the shoulder to the loins, where it is joined by limbs that are light and small, compared with the rest of the body, but very muscular. The color of the hide is a dunnish gray or light mouse color, approaching in some parts to white. This color prevails throughout the whole race, and is modified in some cases by being of lighter or darker shades.

The bulls are generally a shade darker than the cows or oxen.

The Hungarian cattle, of which we give a specimen, differs from its progenitors in being longer in body, head, ears and horns. The body is fuller and rounder, with more depth at the loins. The back is straighter, and the limbs are larger, and the tail is sometimes long enough to sweep the ground. The head is more pointed than that of the Crimean race,

and the face is somewhat arched like that of a sheep, the ears are large and furnished with long hairs inside. The horns of the oxen are remarkable, some being nearly thirty inches in length, and measuring in diameter at the base, nearly ten inches. The cows yield but very little milk.

The powers of endurance of these cattle are remarkable, and in every war which has been carried on in Eastern Europe they have been the principal means of transport, and of food for the armies. These are the cattle which conveyed the vast stores of Russia to the Crimea, and which at the same time furnished a large part of the provision with which the vast armies were fed. These cattle of Hungary compose the celebrated herds upon which a large part of the population of Eastern Europe are fed, and hence the high character which they maintain, but with the exception of their docility, and activity, they possess no quality which renders them at all comparable with the far superior races of Great Britain.

#### Adam's Early Dent Corn.

MR. JOHNSTONE:—If you will publish the following, it will save me the trouble of answering numerous inquiries by letter, and benefit the farmers generally.

"Adam's Early Dent" is the name given to a new variety of corn, that bids fair to supercede all other varieties of dent corn in this latitude. Where or how it originated, I am unable to say; but being always on the lookout for new and useful varieties of seed, I sent to York State two years ago, and obtained a package by mail to test its qualities for green corn, it being highly recommended for that purpose. It answered its recommendation so well, that it was with difficulty I was able to save a few ears for seed.

I raised about an acre of it the past season, and am fully convinced of its superiority over all other varieties of Dent, from the fact that it ripens full two weeks earlier, is a thrifty grower, and yields abundantly; the ears are beautifully proportioned and uniform in size, the cob small and closely packed with from twelve to sixteen rows of pure white grains somewhat resembling the large white dent, but weighs heavier. The stalk is not overlarge but firm, is not inclined to "sucker" and often produces two well matured ears. Being unwell at the time of harvesting, I neglected to ascertain its exact yield; but my hired man said it was the best corn I had, and I am sure it is the best dent corn I ever saw grow in this State.

D. D. TOOKER.

Napoleon, Jackson Co, Mich., Jan. 1, 1857.

#### Potatoes, and How to Grow Them.

MR. EDITOR:—"The drouth ruined my potatoes," was a very general remark last fall in this county of St. Clair. The remark did not apply to my crop,

for I raised a very good one of excellent quality. My general course is to plow the land I intend for potatoes very deep in the fall preceding, and then to cross-plow the same land in the spring. I follow the cross-plowing with a good thorough harrowing, and then mark the land with a chain, in rows three feet apart. The seed potatoes are dropped two rows at a time, and covered with the hoe about two inches deep. As soon as the potatoes are up, and I can readily distinguish the rows, I go through the rows both ways with a cultivator, and dress up the hills with the hoe. When the potato plants are about ready to blossom, and immediately after a rain, while the ground is wet, I turn a good furrow with the double mouldboard plow, each way, and the whole work of cultivation is done. The theory of this system is, that potatoes cannot grow without moisture, and therefore if two inches of wet earth is laid upon that which already has the same amount of wet soil, a summer's drought will hardly exhaust it of moisture. On the contrary, if two inches of dry earth is put upon that which is dry, a summer's rain will hardly wet it through. So my practice thus enables me to grow good crops, whilst my neighbors are entirely unsuccessful.

L. BEACH.

#### Horse Manure.

L. Beach, of Port Huron, writes: Your invitation to the readers of the *Farmer* to forward facts relative to making and saving manure, has encouraged me to send you my method of bedding my horses. I save all my chaff for this purpose, and I use enough each day to absorb all the liquid manure of the stable. I find the chaff much better than straw, and the manure thus made is ready to handle at any moment, and is equally as good as though it had undergone a partial decomposition.

[Mr. Beach's experience only confirms what we have endeavored to teach, and that is that straw cut up into chaff for bedding for all the animals which are kept under cover, would actually pay the expense of its cutting, in the saving of labor it would make in the handling in the spring, when every hour is worth two at any other time, and also in its absorbant capacity which saves a large portion of the most valuable manure which is generally lost. Most of our farmers are yet inexperienced in the true economy of machinery and of manures, and a few hints of this kind are proper and worthy of attention. Give us more of them.—ED.]

HOGS HAIR.—This substance, which is generally allowed to go to waste where only a few animals are killed, is considered a valuable garden manure, especially for the bottom of celery trenches, to which plant it gives a tender and juicy stalk.

### The History and Use of the Barometer.

BY L. WOODRUFF, ANN ARBOR.

(Continued.)

According to Brocklesby the mean or average height of the barometer is nearly the same in all latitudes, when every essential correction is made, and the observations reduced to sea level.

The pressure of the atmosphere increases a little from the equator to about the 30th degree of latitude, where it is greatest; it then decreases to nearly the 64th degree, where it is least; after this it again increases, and between the 75th and 76th degrees, the pressure is equal to that of the equatorial climes. The difference between the barometrical means of the 33d and 64th degrees of latitude amounts to a little over half an inch. The extremes of fluctuation, or range, of the barometer, depends to a much greater extent on the degree of latitude, its range within the tropics being but little over one-fourth of an inch, while at New York, (40 deg. 42 min. N. lat.) it is 2.262 inches, from the observations of five years; at St. Johns, Newfoundland, (47 deg. 34 min. N.) 2.54 inches during the same period, while on the island of Great Britain the variations of the barometer amount to three inches. Here at Ann Arbor, the range of the barometer during the last twelve months has not exceeded 1.80 inches, though the entire range is no doubt considerably greater, as the general maximum and minimum do not usually occur oftener than once in ten or fifteen years. The extent of the movement of the barometer is also dependent on the time of year, the variations in atmospheric pressure being much greater during the colder seasons than in the summer months. During the spring, autumn and winter the mercury frequently falls from half an inch to an inch, and even more, in a single storm, while variations of only half this amount are common in the summer. During the storm of December 12th, '55, the barometer fell  $1\frac{1}{2}$  inches in about 36 hours, the change in pressure amounting to about  $\frac{3}{4}$ ths of a pound to every square inch of surface.

Before proceeding to discuss the indications of the barometer, it is proper to say a few words on the cause of the fluctuations of atmospheric pressure. The two most important elements which induce these variations are heat and moisture, and of these the former is in most cases predominant. The effect of changes in temperature on the pressure of the atmosphere is obvious. If we suppose a portion of the air above any particular spot on the earth's surface to become heated above the temperature of the surrounding atmosphere, this body of air will expand according to a certain law, rising and passing out into the atmosphere around it—when this has taken place, the atmospheric pressure is diminished, and the barometer falls, for the column of mercury is sus-

tained by a column of air of the same size and reaching the top of the atmosphere, and as heated air occupies more space, a given volume becomes lighter as its temperature increases.

The effect of moisture on the weight of the atmosphere depends on the manner in which it is contained in the air. According to the experiments of Dalton, a given space filled with air contains an equal amount of moisture with a vacuum, the temperature being the same, the two fluids arranging themselves the same as though one was a vacuum to the other. If this were always the case, the pressure of the air would always be increased by the weight of the moisture contained in it, and as the capacity of the air for moisture increases with the atmosphere, these two elements would partially counteract each other in their effect on atmospheric pressure. Some time, however, is required for the mixture of vapor and atmospheric air in the way we have described, and the probability is that a complete and mutual diffusion seldom or never takes place, owing to the frequent changes in temperature and the currents of vapor. On this account, and since it is impossible to estimate with any precision the moisture of the air much above the surface of the earth, it is not easy to separate and determine the effect of changes in the humidity of the atmosphere on the movements of the barometer.

From what has been said it may readily be imagined how the pressure of the atmosphere should be subject to almost constant variations, since at any place the air changes frequently and suddenly, both in temperature and the degree of moisture it contains. Now as to the effect of these changes on other atmospheric disturbances.

If at any place the air becomes lighter than the surrounding atmosphere, as would be indicated by a low barometer, a partial vacuum is produced, and the air will immediately rush from the point of high pressure, or where the barometer stands high, to restore the equilibrium. In this way wind is produced, wind being nothing else than the movement of the atmosphere to restore its equilibrium. From the meeting of currents of air of different degrees of temperature, clouds and rain will in most cases result, though the condensation is not always powerful enough to produce the latter. For air at all temperatures may contain a certain amount of invisible vapor and no more, when it is said to be saturated, and if the temperature of a given volume of air which has been saturated is raised from  $32^{\circ}$  to  $90^{\circ}$ , for example, it will be capable of receiving a large addition of moisture before reaching the point of saturation corresponding to the increase of temperature. If now, this volume of air be again cooled to  $32^{\circ}$ , it will be incapable of holding in suspension the additional amount of moisture it has received, and this will be precipitated in the form of rain. This will be



rendered more obvious by the following illustration from Brocklesby, viz: "4000 cubic inches of air at the temperature of 86° Fah., can contain no more than 3.1-12 grains of moisture, and an equal volume at 32° Fah., only 7.7-8 grains. Now, if the two volumes are mingled together, their average temperature will be 59°, and the weight of the moisture they unitedly possess will be 39.3-8 grains. But at this temperature 31.1-12 grains is all the moisture that 8000 cubic inches of air can possibly retain, since the first portion by its union with the second diminished its capacity one half, while that of the latter was only doubled. The excess, therefore, of 7.7-8 grains will be condensed and descend in the form of water." If when two volumes of air meet each other, the difference in their temperatures is not great, or they are not saturated with moisture, the condensation may not be sufficient to produce rain, in which case clouds or fog will only result.

We see clearly, therefore, how changes in the pressure of the atmosphere as indicated by the barometer, may be connected with changes of the weather, and the theory is confirmed by observation. Storms or rain usually occur when the barometer is falling or after it has fallen, for the fall of the barometer indicates the presence of warm currents in the atmosphere, which when containing moisture generally produce rain. In general there will be more or less wind while the barometer is falling, and if the wind is not felt, it will be in those cases when the disturbance is confined to the region of the clouds, and the lower atmosphere remains quiet, though the equilibrium is rarely restored without some decided movement at the surface of the earth.

(To be continued)

### Expelling Rats.

The *Pennsylvania Farm Journal* gives the following result of a chemical experiment on rats. It is worth trying by those who are storing large quantities of grain for the winter. It was tried in Boston, and found successful in driving out an army of rats, after all other means had failed. The editor of the *Farm Journal* thus describes the operation:

"Raising a small board in the garret floor, our friend opened a communication between the floor and ceiling beneath, which interior communicated with the spaces between the side walls and the laths and the plaster over the whole house. Into this opening he placed a dish containing finely pulverized black oxyd of manganese, and poured over it a suitable quantity of strong hydrochloric (muriatic) acid. The floor board was then replaced. The effect of the chemical mixture of black oxyd of manganese and hydrochloric acid is to disengage in the cold that most powerful, deodorizing, fumigating gas, chlorine. In common with all gasses, it gradually diffuses itself through the air, but having a greater weight than atmospheric air, it accumulates at the lowest levels. The tendency of the gas liberated, therefore, was to penetrate every vacant space between the

walls and ceiling, and at last find exit in the cellar. It may be here stated that the quantity of gas so liberated can exert no injurious effect upon the house and its inmates; indeed, the result is rather beneficial than otherwise upon the general health.

The chemical arrangement described had not been long in operation, when it became evident that something unusual was occurring in ratdom. 'All night long it would seem,' says the narrator, 'as if Bedlam had broken loose between the partitions of my house.' Towards morning, all had become quiet—the rats had vanished, big and little, and for a period of nearly three months not one was heard or seen on the premises."

### A Good Plan to Raise Calves.

EDITOR MICHIGAN FARMER: Dear sir—I noticed in one of your valuable papers, of which friend Baldwin sent me a file, some remarks on the method of rearing calves; but as I have lent most of the papers, and cannot now bring it to my aid, I must write from memory. One thing struck my mind as susceptible of improvement in the manner of feeding milk, which was "to learn the calf to drink from a pail." Now, permit me to tell your readers how I manage my calves here in northern Pennsylvania. I let them run with the dam until the third or fourth milking, and after that, feed them from a trough. I keep them in my barn until the grass is up so as to give them a bite. I then put them in a small lot. My plan for feeding is this: I make a small enclosure in the corner of the lot nearest the milk house, say 14 by 16 feet. In order to do this, I first set three posts or stakes in the ground, to fasten the boards for one side of the pen. I then take one board 16 inches, and nail to the bottom of the stakes; I nail another board to the stakes ten inches above the bottom board, leaving a space between the two boards. I then divide this 14 feet into six equal shares, in this way: take short boards, say two feet long, and nail them up and down to the top and bottom boards, leaving a space of 10 inches by 12 for the calves to put their heads through to drink their milk. The object in having so large a space is the calves will more readily put their heads through it than a smaller one. To secure each calf in his place, I have a rod an inch round (or square, if you choose,) that I slip down in the middle of the space; the calf's head may be on either side of the rod or stanchion. Thus each calf is secured in his place, and cannot interfere with the others. I then take a stick of light timber, say pine, bass or hemlock, 14 feet long, 6 inches by 7, in which I make six troughs, (dug out smooth with a howell or round-adsze,) so each calf will have his milk by himself. This trough I place on the inside of the enclosure, next to the stanchions, where I take my milk, the calves being on the outside. By this process, each calf is kept by himself, and likewise saves me many a bunt, and my clothes from being besmeared by the calf's slobber.

Before I adopted this plan, it used to take myself and two or three boys to feed half a dozen calves; but now, my son twelve years old will feed them with more ease than four of us would before.

The troughs may be made of boards, if preferred, but timber is better, as with that I can get a tray-shape, and the calves will get all the milk from the bottom. The trough, by being housed when not in use, will last 50 years.

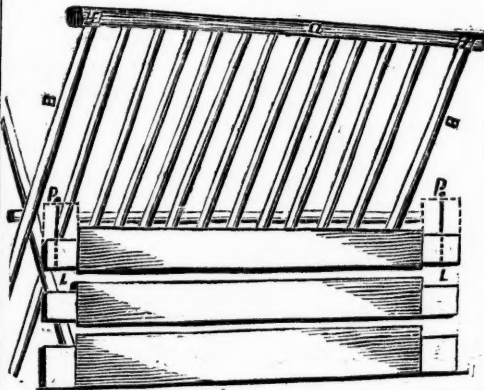
Calves should have what new milk they will drink, until they are three or four weeks old; then I commence putting a little sour with it, and increase the proportion of sour, so that when they are two months old they will drink sour milk like pigs.

REUBEN HARRIS.

[This plan is a very complete one, and at this season is very welcome, as it will give our readers time to take advantage of the useful hints it contains.—ED.]

### Feeding Rack and Manger.

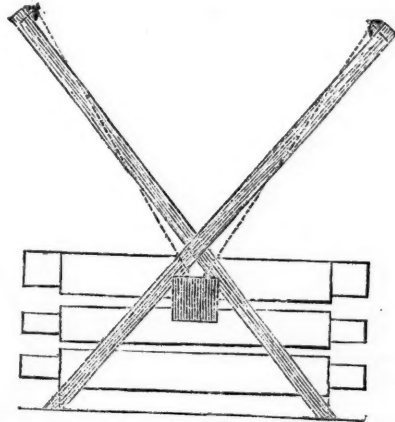
MR. EDITOR—I have been requested by a subscriber to the *Farmer*, in Cass county, to give as good a description of my rack and manger as I can. I will try to do it as well as I can in writing, and transmit you a rough draft of it, and hope you will be able to make something of it.



This rack and manger originated with myself; I have never seen one like it. There was one figured in the *Rural New-Yorker*, but this one I consider far superior in plan. I made my rack five years ago, and it has paid for itself in the saving of fodder every winter since, and I think that every man that will make one will testify the same after he has tried it one season.

My rack and manger combined, is five and a half feet wide, and long enough to accommodate the number of cattle to be fed, say twenty or thirty feet. The height of the manger is three logs, each log being about eight or nine inches in thickness. The long or side log is laid on the ground first, and the end ones jointed on in the same manner as a log house is built. When the third log is laid on, a long log is laid in the centre of the manger, which is to

receive the lower ends of the poles which form the rounds of the rack. This done, put the third end log on, and pin them strongly at the corners. Now lay out your middle log to be bored for the rounds, seven inches apart from centre to centre. The holes should be bored through the logs on one side, and on the other the holes should intersect them, so that water would drain off, and not remain to rot the rounds. The holes should all be bored with regular slant, to form the rack. Two poles of suitable size should be bored with holes, to form the top of the rack. The rounds I make four and a half feet long, and for this purpose use small tamarack poles. When



the rack is put together, I take two poles long enough to reach from the bottom of the manger to the top of the rack, and use them as braces, as seen in the end view of the rack, by crossing them from the bottom over the middle log up to the top of the rack-pole, on the outside. This strengthens the rack, and makes a construction which does not permit any waste in feeding. All the hay pulled out of the rack falls into the manger, and thus does not get trodden under foot, but is used for food. A. C. BRIGGS.

Occola, Livingston Co., Mich., January, 1857.

### Michigan Experience with the Chinese Sugar Millet.

MESSRS. EDITORS—Knowing that you take a deep interest in anything that promises to be valuable for our country, I send you the result of an experiment which I made with the Chinese Sugar Millet—*Sorghum Saccharatum*.

Having received from the Patent Office a paper of the seed, I planted it as a matter of curiosity, though not having the least confidence that it would prove to be worth anything. The seeds and stalks so nearly resembled our common broom corn as to make me feel quite sure that they were these.

I planted it in hills, about 2½ feet apart, with 6 to 10 seeds in a hill. It was greatly neglected during its growth, from an impression of its worthlessness.

Some time in August there was a chance frost which nearly terminated its growth, and, in fact,

completely destroyed some sweet corn growing in the same garden.

The millet was just putting forth its seed stalk, and the seed was, consequently, all destroyed. The stalks, however, were left standing until some time in October, when—still supposing them to be worthless—I had them cut, and thrown into piles, to get them out of the way.

After they had lain upon the ground for some time, I took a handful of the stalks and gave them to my horse, who eat them greedily—eating both leaves and stalks.

About this time I saw a statement in the papers that some person had made some molasses from this plant. This led me to make the following experiment with mine, although I had reason to suppose that the frost and the exposure on the ground would have destroyed any good qualities which it might have originally possessed.

I took some of the canes and cut them into pieces about three inches long, when they were readily ground through one of Hickok's Portable Cider Mills, with cast-iron grinders; and then pressed with the powerful pressers attached to the mill. The quantity ground was about half a bushel of the pieces, and the juice expressed was about seven quarts. This juice, when evaporated, made one quart of molasses, that is pronounced, by those who have tasted of it, to be superior to the New Orleans molasses, and some say, equal to the flavor of the maple syrup. It is at all events, good molasses.

From an estimate made, I judged that the square rod of ground planted—if the cane had all been used—would have produced four gallons of molasses, or at the rate of 640 gallons per acre. Such a crop would have proved valuable the last year, since sugar and molasses are so very high.

There is little doubt in my mind that any person who has a small piece of land may manufacture his own molasses, and perhaps his sugar.

If cultivated on so small a scale as not to warrant the expense of erecting the rollers for expressing the juice from the cane, they may be cut up in a straw-cutter and ground in one of Hickok's portable cider mills, with such facilities that two men could obtain five or six barrels of the juice per day by hand, and proportionately more if horse or other power is used. This juice could be cheaply boiled in one of the evaporators with which you are acquainted, without burning the syrup or wasting any fuel.

Besides the molasses obtained from the stalks, the leaves will make good forage, the seed will nearly equal that of a crop of corn or oats, and the tops will make brooms.

With all these advantages, may not the sugar millet prove of great value to the community? Every family in the country can make their own sugar and molasses, while at the same time, the seed, forage, and brush for making brooms, will pay all of the expenses of raising the crop.

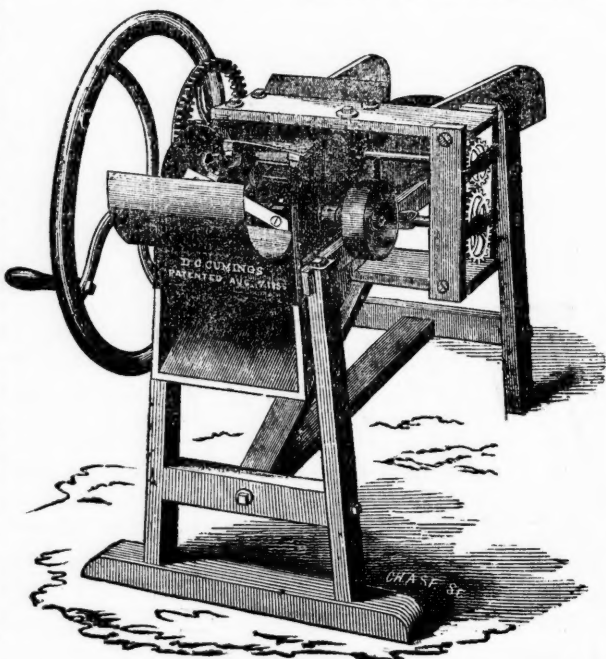
Those having seed to spare, will do well to make

it public, that more experiments may be made during the next summer.

H. G. BULKLEY.

Kalamazoo, Mich., 1857.

**SAWDUST FOR STABLE LITTER.**—We perceive it is stated that sawdust is more valuable than straw as a material to use in stables for litter. Sawdust serves a most excellent purpose in its capacity to retain the moisture and to absorb and retain much of the ammonical volatile substances, which are carried off by evaporation, or by drainage. Cut straw has the same effect and we do not hesitate to say that a good horsepower straw-cutter would pay well, during the winter season, if kept employed as one part of its work in cutting the bedding of the horses and fattening animals. The saving would be in having a much better quality of manure, in the ease in handling, and



in loading and unloading, and also in its better adaptability to be of immediate benefit to the land unto which the manure may be applied.

#### Cumming's Patent Straw and Stalk Cutter.

The above engraving represents a Patent Straw and Stalk Cutter, invented by D. C. Cummings, and of which Messrs. A. B. & G. H. Felts, of Brooklyn, Jackson co., are the agents. This machine is one of the very best of the kind, and has borne off a number of prizes at the State and county fairs. We have seen it in operation on several occasions, and like its work well. We think it exceeds in cutting up straw and stalks into chaff, any implement now in use, both with regard to quality of work and quantity. These machines are made so as to be run with either hand or horse-power.

## Horticultural Department.

### How to Select, Take up, Prune, and Transplant Trees.

#### CHAPTER I.—STANDARD TREES ON FREE STOCKS.

Trees in the nursery, are usually closely planted, in order to make the most of the ground; and, in consequence, grow up tall and slender, sparsely set with long, lean branches. The roots, also, are obliged to extend farther in search of nourishment. Another consequence of this crowding of trees together, is, that they are unfitted to bear the full exposure to which they are submitted when placed in the orchard, especially if they have been suffered to grow to a large size before transplanting. An obvious way to avoid this difficulty would be, to obtain trees that have been allowed more room in the nursery; but, at present prices, nurserymen will hardly be induced to change their practice, and consequently such trees will rarely be found.

It is certainly very natural for planters to desire a return from their trees at the earliest possible moment, but it must be remembered that the labor and expense of transplanting them increases with their age, and that with similar treatment the largest ones receive the severest check, and require the longest time for recovery—a fact which too frequently more than compensates for the difference of age. As planters generally have neither time nor means to spare for the proper treatment of large sized trees, the natural and obviously proper course is, to select those of not more than two or three years growth, and not above five or six feet in height—take them up, with care not to break or bruise the roots, especially the fibrous ones, and plant them not more than an inch or two deeper than before, in broad, deep holes, filled with surface earth, enriched (especially if on old soils) with well rotted manure, well incorporated with it—taking pains to place the roots in their natural position, and to work the earth in among them till no crevices are left unfilled—to insure which, a pail of water answers a very good purpose, applied after the roots are well covered with earth. The earth should then be filled in about the trees so that, when settled, the water that may fall upon the surface will pass off freely. If then a mulch of chip manure, spent tan, barnyard manure or even straw be placed around the tree, it will rarely be found to suffer from drought; but if the mulch be any loose substance, such as straw, that will furnish shelter for mice, it must be carefully watched, as trees so situated are sometimes attacked and ruined by them, even in early autumn.

With the utmost care, in removing even young trees, a large share of the roots, and especially the

fibrous ones, through which a large proportion of its nourishment is drawn, are either essentially injured or entirely removed, and as nature never makes a mistake, but always provides a proper balance of root and top, it is indispensable to the highest success of a transplanted tree, that the top also be correspondingly shortened. Nursery trees, as has already been stated, will seldom be found properly branched, and it is a fact that probably few have failed to notice, that trees usually push new shoots from near the terminus of their branches. In order, therefore, to induce branching at the proper height, it is indispensable that the leading shoot be cut off at that height, and that all side branches below be either entirely removed, or cut back to two or three buds. The ultimate success of a tree depends very largely upon a judicious selection of branches on which to form a top, and an error then is ever afterward beyond remedy. A tree properly transplanted, and cut back to a single upright shoot of four or five feet in height, will usually put forth a profusion of branches, from which, in the succeeding spring, we select a vigorous one for a leader, (if not upright, make it so,) and from four to six side branches, evenly distributed about the trunk. If more be left the top will be found too close on coming into bearing, and if less, they will be very liable to split down from the weight of fruit or the effect of high winds.

Having commenced the head in this manner, the tree should be carefully pruned every spring, taking out only such branches as crowd or cross each other, and by heavier pruning, and, if necessary, shortening in of the stronger ones, checking their vigor, and keeping up a proper balance between them. With most varieties of pear, and of the stronger growing cherries, which naturally form a conical or pyramidal head, caution is necessary in thinning the head, not to prune the leader too closely; as, when once enfeebled, it can only be renovated by a severe and long continued shortening of the balance of the tree, and a failure to do so must result in an awkward, ungainly top.

Trees managed as above, will rarely need the removal of branches too large for the knife, and the labor, in any one season, will be comparatively light. Many persons cling to the practice of running up trees to the height of six or eight feet, before allowing the tops to form, for the purpose of getting them out of the way of the team while plowing. Such persons should recollect that, at whatever height the top is formed, the effect of bearing a few crops of fruit will be to bring the branches, in most cases, to the ground, while the danger from high winds, the liability to disease, and the labor of gathering the fruit, are largely increased.

Some persons, borrowing their ideas from English practice, and forgetting the difference of climate, in-



sist upon cutting out the whole centre of the tree, leaving it somewhat in the form of an inverted umbrella, urging as a reason, that the sun must be permitted to shine freely through the top, in all directions, in order properly to mature the fruit—a practice which is doubtless indispensable in the high latitude and moist, foggy climate of England; but which is unnecessary, not to say hurtful, in our country, with its bright, warm and dry summers. It is believed that the pruning heretofore described, will in all cases in this climate, suffice to admit the light necessary to the proper maturity of the fruit, while it has the advantage of supplying the same amount of bearing wood, within smaller space, with shorter branches, and a consequently diminished liability to break down under heavy loads of fruit.

The orchardist should never forget that fruit trees of different varieties differ widely in their habit of growth. He should therefore study to prune with reference to this habit—encouraging in every way possible the upward growth of such varieties as Roxbury Russet, Rhode Island Greening, &c., which are inclined to spread, and inducing, as far as possible, a spreading habit in Early Strawberry, Poughkeepsie Russet, and others of a naturally upright habit. It is also desirable to place the more spreading kinds in situations most exposed to high winds; while the upright ones can occupy a more central position in the orchard, where the force of the wind will be partially broken.

T. T. LYON.

*Plymouth, Jan. 1857.*

#### A Hotbed and its Management.

Last month, the making of the frame and the covering for a hotbed were treated of. This month we shall say something about the making of the bed itself. Several letters which have been received, show that some of our readers imagine that a hotbed is something that is only fit to be an appurtenance to some rich man's conservatory. But it is no such thing. It is a luxury which every farmer may have who has the use of his hands, or who has a boy that is handy, and who keeps a pair of horses; and he can enjoy its productions just as well as the richest merchant prince who ever sent a vessel out of the port of New York.

The month of February is rather early in our climate to commence making the bed, but the latter part of the month is not too soon to select the place where it should be, and to commence to draw the manure to it. A bed for a frame twelve feet long, and six feet in width, will require about eight or ten single sleighloads of good fresh horse manure. The manure may be drawn and thrown loosely into a pile beside where the bed is to be made, and let stand for a few days. No matter what the size of your frame may be, the outside of the bed should be at least twelve or fifteen inches larger than the out-

side of the frame. A good plan to guide a green hand in this operation, is to drive a stake at each of the four corners, to the exact height to which the bed is to be made. Or an outside casing of rough boards may be nailed to the stakes, and the bed made up by filling it in evenly and solidly to the required height. This casing of boards outside makes the bed a neater affair, and where the ladies of the family choose to do the gardening, it is more agreeable for them. Another advantage is that when the bed sinks, and the weather should be colder than expected, the bottom between the casing and the frame may be filled up with fresh manure, which aids very much to protect the frame and keep up the heat. As a general rule, gardeners make their beds about three to four feet high, and they gradually sink until they are only about two to two and a half feet in height. One of the difficulties occasioned by this gradual subsidence, when the bed is not well made, is that it will lean to the side, or else it will sink in the middle, and the frame being held up at both ends, a hollow will appear. The manure, therefore, should be laid on evenly, and beat down slightly with the fork, and the bed raised gradually to the required height, so that when completed, it would be perfectly level and square. When the bed is thus made, the frame may be placed upon it, and good soil that has the consistence of fine garden mould, may be filled in to within six inches of the top of the lowest side. This should be levelled off and let stand for a few days, so that any weed or grass seeds which are in it may have time to show themselves and be destroyed by raking the surface, and stirring it a little. When the soil to be used is considered too stiff, a mixture of good sharp sand and leached ashes will mellow it, and sometimes it may be necessary to riddle the soil through a coarse wire sieve, before it becomes what should be considered suitable tilth. When the bed is made and ready, which should be from the first to the third week in March, then the seeds are to be sown, and you may plan what shall be sown it. Where plants are wanted for early crops in the open garden, you must be guided in some degree by the season, as for this purpose seeds may be sown too early. Onions, lettuce, radishes, cucumbers may be sown at any time, so that the bed be watched, and plenty of air given. The bed must be carefully watered often, not deluged at one time, and left to dry up at another. Heat and moisture are the two great elements requisite for vegetable growth, with air to prevent the plants from spindling up.

To those who mean to keep a flower garden, a hotbed that is almost spent, is just what they want to give their dahlias and other tuberous-rooted flowers an early start. So with annuals of every kind, which may all be started, so as to be ready to flower early in July, instead of having to wait for

them until August and September, and every one knows that when you once get such annuals started as French Marigolds, the Larkspurs, the Asters, the Balsams, the Stock Gilliflowers, the Candytufts, the Petunias, the Lupins, they may all be blooming at least a month or six weeks earlier than if sown in the open ground. But we shall have more to say on this subject in our next number.

### The Culture of the Peach.

[We take the following article on peach culture from the *Horticulturist* for November. It is written by Samuel T. Jones, Esq., of Staten Island, New York, and is evidently the result of successful practice. It is also such practice as any orchardist can follow, for it is simple and easily carried out. The editor of the *Horticulturist* states that some of the trees in Mr. Jones' garden, which had been subjected to this treatment, measure, at the surface of the ground, from three to four feet in circumference, and at six to eight inches above, from two and a half to three feet. The great trouble with the peach trees in our State, is their over production, arising from want of pruning, and also their misshapen limbs, which is from the same cause. These limbs are constantly breaking with the weight of the fruit, or the weight of heavy snows, and the life of the tree is shortened. The plan of Mr. Jones remedies these defects, and, besides, brings in return much finer and better fruit.—Ed.]

As you were pleased, in a late number, to introduce some approbatory remarks upon my management of the peach, it may not be uninteresting to some of your readers to have a statement more in detail. It is not unusual to hear of the degeneracy of the peach tree—that it is more subject to disease than formerly, and especially the *yellow*s—and that the duration of the tree, in vigorous health, is limited to some six or seven years. I have even heard the belief expressed, that the *yellow*s was transmitted, from generation to generation, by budding from trees apparently healthy, and, also, that the infection was liable to spread from one tree to another.

In my judgment, founded upon the experience of many years, these ideas are erroneous not less than they are injurious and discouraging to the propagation and well being of the tree. Through the exercise of a little care and attention on the part of the grower, which is but a small return for the generous loads of delicious fruit yearly furnished by this tree, I have been enabled to preserve most of them in full vigor for a period of upwards of sixteen years.

The system I have followed first commences in the nursery, or shortly after the tree has been transplanted, by cutting out the top or central branches, leaving but three or four laterals, at a height not exceeding two or two and a half feet from the ground. This system is constantly followed in after years, which disposes the tree to grow with a hollow centre, admitting light and air more thoroughly among the branches, and greatly facilitating the gathering of the fruit and the future prunings. These latter may be performed during the winter, early spring, or, moderately, during the summer, so

as not to endanger the premature bursting or running into wood, of the buds destined to furnish fruit the following year. By means of an ordinary walking-stick, furnished with a hooked handle, the top-most branches even, of trees pruned with hollow centres, may be bent down, and made accessible from the ground, until the limbs become too rigid to bend, through extreme old age. This is by no means a small advantage, when, among many hundreds of trees, it is considered that the full flavor of the fruit so much depends upon gathering it precisely at the proper period of maturity, and through which an examination by the touch may be had with facility, of each separate fruit.

The next, and more important consideration, is to restrain the tree from exhausting itself by its too generous crops of fruit, and which can only be done, with facility, by diminishing the number of fruit-buds at the winter or early spring pruning. My constant instructions, at this time, are "not to spare the knife," being well persuaded that it is necessary not only to the longevity of the tree, but also to the size and quality of the fruit. As the fruit is borne only upon the wood formed during the preceding year, the rule is, first, duly to attend to the hollow form of the tree, which should be constantly maintained, and, secondly, to head back each fruit bearing branch to at least one-half its extent. The crop is thus easily kept within reasonable bounds, and if, after the lapse of many years, any of the main laterals become too rigid or too much extended, new ones may be allowed to grow in their place, and the old ones then withdrawn. The vigor and growth of the tree seem to be surprisingly increased under this restraining system, as are also the size and quality of the fruit.

The third important point is, to guard the tree from its insidious and deadly foe, the worm. For this purpose, two examinations of each tree should regularly be made—one in the month of May, and the other in September. Fortunately, the presence of the worm may easily be discovered at or just beneath the surface of the ground, by the oozing of the gum, and if not duly attended to, will in a short time occasion the destruction of the tree by cutting around the bark, and thus diminishing or totally destroying communication between the tree and its roots. The worm is most speedily and effectually destroyed by scraping and probing them away through the aid of an ordinary oyster-knife, which is usually pointed and formed with a double edge. With such an instrument, a person may go through many hundreds of trees in a day, when the system is regularly attended to as above described, and it will be found that, with such care, but here and there only will a tree be infested and require attention.

As the peach tree is so generous in its growth, and in its exuberant crops, it is necessarily a great exhaustor of the soil, and must have the support of proper manures. It is also essential to its prosperity that the soil should be kept open, and free from grass or weeds. I have found that the cultivation of many kinds of root crops requiring manures and frequent stirring of the soil, such as potatoes, beets, turnips, &c., are quite consistent with the health and vigor of the tree, but that, when the soil becomes bound through a dense growth of grass, which excludes light and air from the roots, it soon dwindles, becomes sickly, takes on the *yellow*s, and dies. At the period of *stoning of the fruit*, a large demand

for silica is made upon the soil, which must necessarily be dissolved, and conveyed through the roots, trunk, and branches, in a soluble state. It is probable that, along with carbonic acid, some kinds of alkaline manures, such as lime, or a mixture of one-third potash and two-thirds salt, contribute most powerfully to the efforts of the tree in effecting its solution, and, with this view, I have caused a handful or two, according to the size of the tree, to be applied upon the soil, and forked in to the distance of about three or four feet around each one, at the examinations for worms in May and September. A dose of guano, to the same extent, in lieu of the above, is also excellent.

Under this system, which is by no means expensive or burdensome, I am well repaid by regular and large crops of the finest fruit. I have never had a case of the *yellow*s, unless, through some oversight, a tree has been neglected at the examinations for worms, and the application of the alkaline manures has been omitted.

In my judgment, this disease is owing entirely to a want of attention, or neglect of one of the important points I have adverted to, and when a tree, through neglect, has become affected with the *yellow*s, I have in no instance known it to extend to the other trees upon which attention had been duly bestowed.

### Fruit Prospects.

There is good reason to believe that the coming season will be a very productive one for fruit. The drouth of the past year, and the severity of the winter of 1856, having had the effect of rendering most fruit trees unproductive. But while thus unproductive, trees that have come to maturity are not wholly losing a season, for during the year that no fruit is yielded, the young wood of the trees is growing, and they are preparing to produce fruit buds for the crop of the next season. In this connection we quote the following remarks of M. B. Bateham, of the *Ohio Cultivator*, who is the proprietor of the Columbus nursery. He says:

There is reason to believe that the coming year will be one of unusual fruitfulness in the field, orchard and garden; and that more of public interest will be manifested, and more progress made in horticulture and rural science generally, than at any former period of our country's history.

In the first place, it is well known that a season of severe drought always has a beneficial effect on the soil, so that crops of all kinds are unusually abundant the following season—let this fact encourage those farmers whose crops have failed in consequence of the past dry season.

Secondly, fruit trees of all kinds bear most profusely after a season of partial or entire rest; in other words, it is found that orchards can only bear a full crop once in two years, the alternate year being necessary to allow the trees to recruit their energies, and produce a new supply of young wood and fruit buds; hence, from the general failure of fruit crops the past season, we may expect an abundant yield the coming one.

Thirdly, the scarcity of fruits, and indeed their entire absence in most families, this season, will increase the appetite for them next year, so that more will be

consumed in our towns and cities, and the prices in our markets will be so remunerative, that those who possess trees will be willing to bestow more labor on their cultivation, when they see promise of a crop.

### Something about Bees.

During last month we had a visit from an old friend of the *Michigan Farmer*, who came in from Wayne "to hae a crack wi' the editor." Mr. John Dawson, we found a very sensible farmer, Scotch by birth, who had paid a great deal of attention to the Honey Bee, both in this country and in that from which he came. His reading on the subject has been very extensive, and from what we have heard, his opinions are universally respected in the neighborhood where he resides. We remarked that many of his observations agreed with those of Quinby and of Huber. Mr. Dawson considered Huber's as one of the most reliable works on the honey bee. He informed us that during his trials with many hives which he had handled, he had found that the bees in the smallest hive he had ever tried, weighed two and a half pounds, and the largest weighed six pounds. A pound of bees dead, he had found by actual count, contained 5,700, so that the small hives would contain about 14,250 bees, and a large one 34,200. Mr. Dawson also remarked that it is the general opinion that bees were forced to swarm from want of room, and that they were led by the queen to seek other quarters. Both these opinions were wrong. The swarming of bees was a natural instinct, which was as proper to the insect as the making of honey. Besides the queen never led them out, she was generally the last to leave the hive, as Mr. Dawson said he had reason to know by watching for her when desirous of securing swarms.

Another point about which Mr. Dawson wished us to correct the public ideas, was the mistaken notion that the wax exudes from the body of the bee, and gathers on the thighs, where it may be found in minute scales. Nothing, he says, is more preposterous. Often has he seen the bee make and pinch the cell, and after it is built, the bee then saws around the edge to bore off the top and finish its work, and the minute scales seen by some apianians, are only the fragments of the cell which are stored in the hairy covering of the thighs, and posterior parts of the bee. In this we find that Mr. Dawson agrees with the best entomologists.

**THE CONCORD GRAPE.**—The Concord Grape is gaining each season in the good opinion of fruit growers, and though not considered a perfect grape, it is generally allowed to be the most superior hardy grape yet grown. It has only been two years before the public, yet it is now spread all over the west, and all our nurserymen have it for sale.



### Battle Creek Horticultural Society.

During the past year a Horticultural Society has been organized at Battle Creek, Calhoun county. The society was organized on the 19th of March, 1856. The fee for admission to membership is half a dollar. There have been twenty-eight certificates of membership issued within the past year. The object of the society is to promote a knowledge and taste for pomology and gardening. Such a taste tends to refine, and gives character to the locality, besides really adding very much to the appearance of the village and to the enjoyment of home. Fruits, flowers, birds and bees, all may be included in the objects, a correct knowledge of which it is intended to increase by such a society as this. The exhibitions, to which they give rise, aid in keeping up a healthy excitement, and the comparison of the productions, of the garden, create an emulation, which produces the best results. Already this society has put itself in communication with the Patent office, and it has received seeds, reports, and scions, which would not otherwise have been distributed. We hope the society may be well sustained. We would say to the members that we can furnish them with the *Horticulturist* or the *Magazine of Horticulture*, published by C. M. Hovey, and the *Michigan Farmer*, for \$2.50 per year.

**TO SAVE EARLY CUCUMBERS AND MELON PLANTS.** Make boxes of common siding about fifteen or twenty inches square, and cover the top with millinet. These little frames which may be got ready now, will serve two purposes. The first and most important one is to preserve the young plants from the striped bug, and the other is the protection they can be made to afford from the effects of late frosts, and thus be made the means of yielding a much earlier crop than obtained without such protection.

**THE JAPAN PEA.**—This vegetable, it is found, will not ripen during our summer, and is only adapted to a southern climate. A writer in the *Country Gentleman* states that he sowed the peas he got from the Patent Office on the first of May, and while they bloomed and flowered in great perfection, forming the most attractive ornament in his garden, on the fifteenth of October, they were struck with a frost while they were in this green condition, and never ripened their seed.

**PROTECTION OF SEED PEAS.**—A correspondent of the *London Gardener's Chronicle* states that he has found a little powdered rosin sprinkled or dusted over peas when sown to be a good protection against the depredations of birds and mice. Would not the same article be worth trying upon corn, where liable to be attacked by crows and vermin.

## The Household.

"She looketh well to the ways of her household, and eateth not the bread of idleness."—Proverbs.

EDITED BY MRS. L. B. ADAMS.

### Our Home.

BY MRS. L. B. ADAMS.

A lowly, wildwood home is ours,  
No spacious halls, no lofty towers,  
No gardens gay with fairy bowers,  
Nor pomp nor pride are here ;  
Yet wealth, with fingers bright and cold,  
Those magic fingers, nerved with gold,  
Amid the realms of romance old  
Ne'er wrought a home so dear.

Its summer roof is gay with moss,  
And climbing vines and roses cross,  
And blooming trees their branches toss  
In breeze and sunshine there ;  
And when her garland Autumn weaves,  
Of coral seeds and painted leaves,  
The moss grows gray along the eaves  
Like Age's whit'ning hair.

And now though piled with drifting snow,  
Though fierce the north winds round it blow,  
No chill can reach the hearts below  
Where social love holds sway,  
Where cheerily each winter night,  
While blazing fires burn high and bright,  
The scattered household band unite  
Around the hearthstone gray.

The dear old hearthstone of our home,  
Where'er on earth our steps shall roam,  
No purer light than thine can come  
Life's pilgrimage to cheer,—  
Light from the blazing brands piled high,  
And holier light, that cannot die,  
From each fond lip and loving eye  
That makes our household dear.

### A Chapter with the Children.

What a pile of letters! Shall we ever get through them? There cannot be less than thirty; and though we may not be able to answer all, or even to name each one separately, or print half the enigmas and puzzles they contain, yet all are welcome. They come from the children of our Household at the north, south, east and west. They speak friendly words, and prove to us how warmly the *Farmer* is welcomed among the young, as well as among our older and more practical readers.

And now, little friends, we must have a few words of plain talk with you about spelling, as we promised some time ago. Many of you write very neat letters to look at; not a blot on the sheet, not a word erased or interlined—all folded right, and neatly sealed and superscribed; but then when we come to read the contents carefully, and note the spelling, the beauty of the whole is gone. Nothing disfigures a letter worse than bad spelling; we would rather see a blot, for that may be the result of accident. Old people, and those who have not had good advantages for



learning, and are not accustomed to write, may be excused for words wrongly spelled; but where is the excuse for children who live so much among books and schools and newspapers, as those of Michigan do at the present time? And the strangest thing about it is, that it is not often the big, hard words that you get wrong, but the simple, easy ones, and those most in use in everyday life. We are going to give a few examples from the different letters, without telling who the writers are. Each one will know their own. We shall not correct them, but just spell them as you have done, and let you correct them yourselves. Here is a list of the words:

"Puzels, teritora, Conneticut, Rusia, Brittish, servece, grammer, miselaneous, Febuary, nomber, evry, post-office, smal, thoos, oposite, parairie, plesent, aggreeable, tit, (for part of a cow,) schollar, verry, ansered, haveing, perty, scheems, caracterize."

See how such words look in print! You know they are wrong the moment you put your eyes on them, and you would not like to have them published so in your letters.

Another way in which some of you make mistakes is in not placing capital letters where they should be. See how *france* looks beginning with a little f; and *unitedstates*, and *Northamerica*, and *britishprovinces* without the proper divisions and capitals! When you sit down to write, if you are not perfectly sure you know how to spell all the words you want to use, the safest way is to have a dictionary or spelling book at hand to which you can refer when the least doubt arises. Your spelling books have, or should have, rules for spelling, placing capitals, pauses, &c., and by being careful now at the beginning, you will soon acquire the habit of writing correctly on all occasions.

Another way in which you may improve is, by being careful to notice how words are spelled in everything you read. If you come across one that looks doubtful, hunt it out in your dictionary, read the definition, and see if it is used in the right sense; thus you will get the habit of associating ideas with the words, and this will help you greatly in understanding the use of words, and the correct way of spelling them. We do not expect that little children can write letters which shall be perfect, but as we think many of you have written the words along without ever thinking whether there was any right or wrong about them, we have given these hints to put you on your guard in future.

Another thing we must caution the girls about; and that is, the choice of names for signatures to their letters and enigmas. The boys, we are glad to see, do not need any caution in this matter, for they are (with one or two exceptions) bold and manly enough to come out honestly with their own names, and then give us the liberty of publishing their ini-

tials, or a part of the name, as we choose. The girls are a little more timid, and also inclined to be a little more fanciful. Some merely give their first name, others get something which they think looks pretty and sounds romantic, and sign that, without giving their right names at all. In one or two instances we have published such ones, but do not intend to do so any more after this month. We want to know who our little friends are; we want to know the names their parents call them by at home; we see romantic names enough in the silly novels of the day, and among their sillier authors, and we do not want our little farmer girls of Michigan to get their sensible heads turned with the idea that there is any merit in a pretty sounding name, unless it is the name they are known and loved by at home—one that they have made lovely by their own amiable and gentle behavior.

Once again we say to all of you, your little notes are always welcome; and though you cannot expect all your enigmas will be published the month they are received, you must not be discouraged. Composing and writing them will do you good, if you take pains and try to improve, even though they should never be printed.

In relation to the subjects you choose, we have more than once hinted that we could not publish any of a political tendency; therefore, those who have sent enigmas on the names of candidates for political offices, will not expect to see them in print, though they are all good ones. You will find more appropriate themes in your histories and geographies, or among your forests, fields and gardens.

#### Letter from a Little Girl.

[The following letter from a little friend in Clinton county, is one of the neatest and best written among the numbers on our table. Besides showing that the writer is an intelligent, observing little girl, it gives a good idea of the state of society there; and we think with her father, that when harvest time comes, he will be able to show his neighbors the difference between the crops of those who take the *Michigan Farmer* and those who do not.

But the greatest beauty of this prettily-written letter is, that there was not a word mis-spelled from beginning to end. Sarah is making good use of the advantages afforded by the excellent school of which she speaks. We shall be glad to hear from her again, and hope either she or her father will inform us at the proper time, of the results of that deep plowing.]

MR. JOHNSTONE, Dear sir:—I do not know how I shall succeed in this undertaking, for it is an entirely new thing to me. There is but one man in the neighborhood, besides father, that takes the *Farmer*,

and that is the postmaster.\* But the people are quite intelligent, and there are but few families that do not take any paper. We have a good frame schoolhouse, built nine years ago last summer. We have an excellent school. The teacher is a graduate of Alfred Seminary. The scholars all like her very well. We have a set of Mitchell's Outline Maps, bought last winter. Also a map of the World and of the United States. School has been commenced seven weeks. We have forty-three scholars. I study the Key to Mitchell's Outline Maps, Davies Algebra, Clark's Grammar, Colburn's Arithmetic, and Adam's New Arithmetic, and read in Porter's Rhetorical Reader. We use none but Sander's old series of spelling books in the school.

My father and mother moved from old Ontario here when it was a dense wilderness. Nothing done, not even a log cut for the house. It was thirteen years ago last September. Father has a farm of 100 acres. It is nearly all under cultivation, and he intends to buy more. The folks around here laugh at him considerable for plowing his land so deep; but he thinks that next harvest time he will show them the benefit of it. When they first came here they were sick a good deal, and had to send to Owosso, eighteen miles from here for a physician, but now we only have to send four miles and a half.

Hoping you will excuse the errors of this, on the ground that I am only twelve years old, I subscribe myself, Yours, truly, SARAH E. BRUNSON.

Viator, Jan. 7, 1857.

Hattie B. has done wonderfully well for a little girl. Her writing shows that she is making great efforts to improve, and we should judge from its appearance that she has a very energetic, persevering disposition. She certainly has good manners, for she says when the *Farmer* comes, she "waits for the older folks to read it," though it is very hard doing so, as she is so anxious to read it herself. It is a good trait in children to show deference to older people, and particularly towards their parents.

E. F. B. and F. C. M. must excuse us from publishing their anagrams. They do not read so as to make either sense or wit, as all such puzzles should. The answer to E. F. B.'s enigma is spelled wrong, and of course the enigma is wrong. With a little more care she can do better. We hope she will try.

Lillie's enigma is very good, and neatly written; but when she has read our Chapter with the Children, she will know why we do not publish it. We like the subject, but it is against the rule. The same with E. J., of Livonia, and several others.

THE WORKS OF MRS. CAROLINE LEE HENTZ.—T. B. Peterson, of Philadelphia, has now in press, and will publish on the 31st of January, a beautiful edition of Mrs. Hentz's works, comprising "Love after Marriage," and thirteen other "Novelettes of the heart." Those who are familiar with the writings of this estimable and lamented

lady, will heartily concur in the following opinion expressed by the editor of the *Saturday Courier*:

"Mrs. Hentz was one of our most successful writers. Indeed, there is not a woman in America whose tales have been more steadily and uniformly popular. They are full of sweet scenes of domestic love, purity and joy, which win the heart of the reader. There is breathed into the pages of her works a sentiment of the pure, the exalting, the truly religious, which is seldom found in any works of fiction. The fragrance of a serious heart, and a religious life give grace to every page and cannot fail in their sweet salutary influence on every heart. Mrs. Hentz was a pious lady and a professed follower of our Saviour. A high, moral, and religious charm pervades all the stories in this volume, imparting a glow to the finest feelings of our nature, and from the beginning to end strength is added to strength, and beauty to beauty. Wherever her works have found their way over this or any other continent, she is known with respectful admiration, and regarded by hundreds with filial or sisterly affection. What fame could have been dearer to a woman's heart, and how few are there who are privileged to feel such happiness, happiness enhanced by the knowledge that wherever her works had been read, they had shed an atmosphere of purity and piety, making one better for having perused them! The sound, healthy tone of all Mrs. Hentz's stories makes them safe as well as delightful reading, and we can safely and warmly recommend this volume to all who delight in agreeable fictions."

The works will be published complete in one large duodecimo volume, neatly bound in cloth, for \$1.25, or in two volumes, paper cover, for \$1; and copies of either will be sent to any part of the United States, free of postage, on remitting the price of the edition wished, to the publisher, in a letter. Address T. B. Peterson, No. 102 Chestnut-st., Philadelphia.

BOOKS FOR CHILDREN.—The little ones around household firesides, both in city and country, need want no better amusement than may be found in the many pretty story books lately published on purpose for them. Raymond & Selleck, of Detroit, have a fine assortment of such works, among which are the delightful stories by Cousin Angie, and Cousin Fannie; The Fairy Spectacles; Worth, not Wealth; Koboltozo; Bright Pictures from Child-life, and Redbeard's Stories for Children. These prettily bound volumes are beautifully illustrated, and we are sure the children will be made better and happier by reading them. Parents, call at Raymond & Selleck's when you come to town.

O. H., of Burlington, will consider that New Year's day has so far gone by, that his communication is out of season.


Will Lizzie B. please give us her name? We want to write to her.

CARRIE M., of Chelsea, is more than a year and a half behind the times. If she will examine the number of the *Farmer* to which she refers, she will find that it was printed in June, 1855. N. E. D. is no doubt provided for long before this. The last we heard of him, he was making inquiries for garden seeds and other necessities of domestic life!

A SURE REMEDY FOR A FELON.—It is said by somebody who pretends to know all about it, that the following is a sure remedy for a felon:—"Take a pint of common soft soap and stir in air slacked lime till it is of the consistency of glaziers' putty. Make a 'leather thimble,' fill it with this composition and insert the finger therein. Change the composition once in twenty minutes, and a cure is certain."

\*Yes; we have two more subscribers there; new ones for this year, which shows the influence of the good example set by your father and the postmaster.

**TO MAKE BLACKBOARDS.**—Sometimes it is handy to have a blackboard at home, and for coloring one, we see a good composition recommended, which is as follows: Boil a pound of logwood in water enough to cover it, and add to it while boiling, half an ounce of green vitriol. This stain is superior to paint, and there is no gloss to it, and it does not wear off readily. When applied it dries in a few minutes.

 **Oats** ground with buckwheat in the proportion of one to three, it is said, makes a meal greatly superior to buckwheat alone for griddle cakes. The cakes brown more easily and more crisply, and are lighter than when the flour is all buckwheat.

**CURE FOR A DRY COUGH.**—Take of powdered gum arabic, half an ounce; liquorice juice, half an ounce. Dissolve the gum first in warm water, squeeze in the juice of a lemon, then add of paregoric, two drachms; syrup of squills, one drachm. Cork all in a bottle and shake well. Take one teaspoon-full when the cough is troublesome.

### An Enigmatical Story.

There was a boy whose name was 5, 3, 11, 25, 23, 24, 3, 33. He went to see a boy whose name was 24, 13, 17, 2, 24, 12, 29. Says 5 to 24. "Let us go and play 16, 9, 5, 20, 10, 22, 2, 11, behind the 6, 5, 22, 18." "O no," said 24. "Let us go and look at the 20, 37, 24, 25, 22, 9, 23, in my 6, 19, 2, 15, 23." "Well," said 5, "let us do that, then." So 24 went and got his 6, 19, 2, 15, 23, about 5, 18, 13, 17, 5, 16, 23, and said to 5, "What is that?" "It is a 6, 2, 1," said 24. That is right; what is this? That is a 3, 22, 2, 17, 9, 3, 5, 4, 29. Wrong; that is a 7, 5, 17, 9, 16. What is that? It is a 30, 9, 6, 22, 5. Right; what is that? It is a 21, 25, 13, 18, 7, 9. Right; what is that? It is a 27, 2, 16, 10. Right; who is that? It is 28, 9, 22, 29, 9, 23. That is right; now what is this? I don't know. Well, you would know if you knew 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30.

Romeo.

G. D. M.

### Enigma.

Take ten letters.

From my 2, 4, 5, you can make a drink.

My 5, 4, 1, you will find in the forest.

My 3, 4, 2, 1, grows in Africa.

My 4, 2, 1, 3, is useful at night.

My 3, 5, 10, 7, is a country in South America.

My 6, 2, 4, 5, 1, is a town in Washtenaw county.

My 2, 2, 7, 4, was an Apostle.

My 2, 10, 8, 4, is a sea in Asia.

My 6, 8, 2, 4, lives in the ocean.

My 6, 5, 2 is a body of salt water.

My whole is a great luxury to the Indians.

EMMA, of Locust Grove.

**Answer to Miscellaneous Enigma.**—THE MICHIGAN FARMER. Answered by Hattie B. and Sarah E. B., Victor; Lillie, Saginaw; Frank M. Foot, South Bend, Ind.; Sue, of Romeo; Amanda, of Cereaco; N. D. Mussey, Romeo; H. S. S., Kalamazoo; E. M. Orton, Ortonville; G. D. M., of Romeo.

**Answers to Problem of G. C., in December Farmer.**—First answer—A's age 26; B's age 36. Second answer—5 years ago. Answered by John Blaiz, Albion; Mary Eliza, of Bedford; Alfred Wellington, Hockville; Frankie C. McAllister, Locust Grove; A. Ford, Vergennes.

**Answer to Enigmatical Charade.**—DICTIONARY. Answered by G. D. M., of Romeo; Sarah E. Brunson, Victor.

## MICHIGAN FARMER.

ROBERT F. JOHNSTONE, EDITOR.

DETROIT, FEBRUARY, 1857.

### Something Worth Reading.

In this number we present to our readers an article on the honey bee, written by Dr. Henry Goadby, at our request. For several months we have been annoyed by seeing paraded through the several agricultural journals and periodicals, an article on the honey bee, which originally appeared in the *Country Gentleman* and *Albany Cultivator*, as a communication, and which has been picked up and sent flying all over the country broadcast. This communication was full of the most gross errors concerning the insect to which it referred. When we first saw it, but little attention was given the subject, thinking as a matter of course, that the nonsense of the writer would be contradicted at an early date in the journal in which it first appeared. Such not being the case, and finding the absurd assertions of the writer spreading, and knowing from our own somewhat limited acquaintance with the nature of the Bee, that the whole theory of secreting glands, was totally inconsistent with the structure and nature of the insect, while it seemed plausible to the ignorant, we applied to the highest authority in this or any country, for full information upon this subject, namely, to Dr. Goadby, the most distinguished naturalist, and very best authority extant on the nature and functions of insects. The results of the application will be found in the article on the honey bee in this number of the *Farmer*, which affords not only full information, but is also illustrated from preparations of the anatomy of the bee, engraved under the eye of the Professor, and which are taken from specimens in his cabinet.

We point our brethren of the agricultural press, particularly to what Professor Goadby teaches concerning the making of the honey, and the manufacture of the wax. We believe, that the true nature of honey, its preparation, and the manufacture of the wax, with the insect's manner of loading itself, has never been so fully and plainly shown as it is in this article, by one who has gone directly to the fountain head for his knowledge, and whose skill as a microscopical examiner, and whose researches as a comparative anatomist, entitle his statements to the very highest respect. We can only say that we place the engravings and the whole article at the service of the agricultural press, because we are certain that it will correct many erroneous ideas and impressions which are now entertained concerning this wonderful insect.

 The questions of A. J. H. will be answered more fully next month, than our space will permit in this.

### The Postage on the Farmer.

We have had several inquiries sent to us relative to the amount of postage due on the *Farmer*. We have consulted with the postmaster in Detroit, who has himself been a printer and newspaper publisher, and have come to the following conclusions, which the postmaster of this city pronounces correct. The law is thus:

Each newspaper and periodical, unsealed circular, or other article of printed matter, not exceeding three ounces in weight, to any part of the United States, *one cent*.

For every additional ounce or portion of an ounce, *one cent*.

If the postage on any newspaper or periodical is paid quarterly or yearly in advance at the office where the same is either *mailed or delivered*, then half the above rates are charged. Newspapers and periodicals not weighing over one and a half ounces, circulated in the State where published, are likewise charged but one-half the above rates.

The *Farmer* weighs nearly two ounces, the postage on it therefore, is *six cents per year* when paid in advance, and *twelve cents*, when paid at the end of the year.

The Secretary of the New Hampshire State Agricultural Society has sent us a very neat volume containing the transactions of the Society for 1856. There are several papers of considerable interest to northern farmers, in the work.

### State Agricultural Society.

The annual meeting of the Executive Committee of the Michigan State Agricultural Society, was held at Lansing, January 13th.

**Present**—The President, James Bayley, of Troy; ex-President, A. Y. Moore, Schoolcraft; Horace Welch, Ypsilanti; J. B. Crippen, Coldwater; J. J. Newell, Adrian; Chas. Dickey, Marshall; C. W. Green, Farmington; Wm. Canfield, Mt. Clemens; E. G. Morton, Monroe; A. N. Hart, Lapeer; J. C. Holmes, Detroit, Secretary.

**Delegates from County Societies**.—Doct. Marvin and Mr. Hammond, Clinton county; Mr. Barnum, Van Buren co.; Mr. Fowle, Hillsdale; Mr. Divine, Mr. Warren and Mr. Fargo, Montcalm.

The Secretary presented his annual report, which was read and adopted.

The following committees were appointed by the President:

**On Essays**—J. J. Newell, Wm. Canfield, A. N. Hart.

**Field Crops**—H. Welch, C. W. Green.

**Finance**—J. B. Crippen, H. Welch, A. N. Hart.

**County Agricultural Societies**—J. B. Crippen, Chas. Dickey.

**Rules and Regulations**—A. Y. Moore, E. G. Morton.

**Premium List**—Chas. Dickey, C. W. Green, J. J. Newell, J. B. Crippen.

The report of the Treasurer was presented and referred to the committee on finance. After some discussion upon various subjects, the committee adjourned to 9 o'clock to-morrow morning.

**January 14th**.—The committee met and was called to order at 9 A. M.

The committee on Premium List presented their report, which was read and accepted. On motion of Mr. Hart, the report was taken up by sections, discussed, and after sundry amendments, adopted.

On motion of Mr. Crippen,

**Resolved**, That this Executive Committee do not believe it to be the true interest of any breeder of cattle to encourage the breeding of cross of blood animals—the direct tendency of such breeding being to depreciate rather than advance the character of animals so bred. Adopted.

The committee adjourned to 2 P. M.

At 2 o'clock P. M., the committee met, and was called to order by the President.

On motion of Mr. Newell,

**Resolved**, That the Committee will visit the State Agricultural College to-morrow afternoon—15th—at 2 o'clock.

On motion of Mr. Morton,

**Resolved**, That persons owning farms lying partly in this State and partly in an adjoining State be, and they are hereby, allowed to compete for premiums in Michigan. Adopted.

**Resolved**, That during the Annual Fair for 1857, the time devoted to the exhibition of horses shall not be allowed to trespass upon the time due to the other branches, and interests represented; but shall receive such attention only as is allotted to the other departments, with a view of doing ample justice to all.

**Resolved**, further, that all horses, in trials of speed, except matched horses, shall be exhibited singly, by themselves, and timed.

The committee on Field Crops reported the following awards:

#### CORN.

To Almond Harmon, of Blisfield, Lenawee county, for crop of corn, 1st premium ..... \$3 00  
Luther Proctor, of Washington, Macomb co., 2d prem ..... 6 00  
K. R. Briggs, of Washington, 3d prem ..... 4 00

#### OATS.

Alvin Chamberlain, of A. mada, Macomb co., crop of oats, 1st premium ..... 4 00

#### BUCKWHEAT.

R. R. Briggs, Romeo, Macomb co., for crops of Buckwheat, 1st premium ..... 4 00

#### BEANS.

Charles Luman, of Ray, Macomb co., for crop of beans, 1st pr ..... 4 00

#### CARROTS.

R. R. Briggs, Romeo, for crop of carrots, 1st prem ..... 4 00

#### BROOM CORN.

Albert Edgett, Bruce, Macomb co., for crop of broom corn, 1st premium ..... 00

HORACE WELCH, Chairman Com.



*Thursday, Jan. 15th.*—The Committee on Finance presented their report, which was accepted and, after some discussion, adopted.

At 2 P. M., the committee, in company with the members of the Legislature, the State Board of Education, the Trustees of the Asylums, the Board of Control of the House of Correction, and the State Officers, visited the Agricultural College.

At 7 P. M. the committee met; the committee on Rules and Regulations presented their report, which was accepted and, after some discussion and amendments, was adopted. Adjourned to 9 A. M.

*Friday, 16th.*—The committee met at 9 o'clock, A. M. On motion of Mr. Morton.

*Resolved*, That the 9th Annual Fair be held on Tuesday, Wednesday, Thursday and Friday, the 29th and 30th days of September, and the 1st and 2d days of October, 1857.

On motion of Mr. Moore,

*Resolved*, That Horace Welch, E. G. Morton and J. B. Crippen be the Business Committee for the present year.

On motion of Mr. Morton,

*Resolved*, That the 9th Annual Fair be held in or near the city of Detroit: provided, the city of Detroit shall pay or secure to be paid, to the satisfaction of the Treasurer of the society, the sum of two thousand dollars, by the first day of May next; to be paid into the treasury by the first day of September next. Otherwise, it shall be located in any other town or city on the line of either of the railroads in the State, that shall offer the greatest inducements to the society, as determined by the business committee by the first day of July next.

*Resolved*, That, provided the citizens of Detroit do not comply with the above resolution, the Treasurer shall notify the Secretary of the fact, when it shall become the duty of the Secretary to notify the people of the State, through the daily papers of the city of Detroit, that they may compete for the location.

The committee on Farm Accounts presented the following report, viz:

The committee to whom was referred "Farm Accounts," respectfully report, that a farm book was presented by James Clizbe, of the town of Quiney, Branch county, which we examined carefully.

We find therein a portion of a system which, if carried out, or made sufficiently explicit, and accurate, would be of much benefit and satisfaction to the farmer.

There is no daily routine explained by which inexperienced farmers could get such a correct idea of the system as to enable them to teach it to others. The accounts themselves appear to be too much in round numbers to show a close detail of accuracy, and therefore we cannot award to Mr. Clizbe the Society's premium, although there is no competition.

We would further report, that we highly appreciate the effort made by Mr. Clizbe in his efforts as a superior farmer, which is very plainly indicated by his draft, and accuracy of his arrangement of fields, improvements, &c., and hope that he may still make further advances by showing a regular rotation of crops, and a daily register of all his business opera-

tions, which, if reported, would be of great benefit to others as well as a pleasure to himself.

All of which is respectfully reported.

A. Y. MOORE,

A. N. HART,

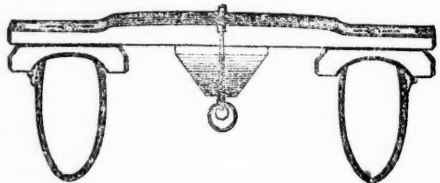
HORACE WELCH.

} Com.

The committee on Essays reported that several essays had been presented to them, and they had not time during this session to examine them so thoroughly as they could wish, therefore asked further time to examine them and make up their report, which was granted.

### The Agricultural College.

We perceive that the Board of Education have tendered the presidency of the Agricultural College at Lansing, to JOSEPH R. WILLIAMS, Esq. This selection is considered by all the friends of the institution as a very judicious choice. Mr. Williams was formerly a resident of Constantine, St. Joseph co., where for some eighteen or twenty years he was connected with the agricultural interests of that portion of southern Michigan. He will bring to the institution over which he is called to preside, an active mind, well stored with varied and extensive reading, much practical experience as to the educational wants of the students who may resort to the College, and that administrative tact, and the suggestive faculty so useful in the planning and arrangement of a new enterprise of this kind. All the appointments of professorships have not yet been filled, but probably they will be before the end of the session of the Legislature.



**AN IMPROVED OX-YOKE.**—The above engraving gives a very good representation of an improved ox-yoke, recently invented by Mr. N. Parrish, of Hamtramck. The short yoke plays in sliding grooves in the long yoke, and also moves so as to permit the oxen, in turning or moving, a play of the neck and head, so that the one does not pull on the other. In plowing, it will be found also that this yoke will work much easier than the common one. On the under part of this yoke there is a jointed centre bar, which regulates the play of the short yokes, and by which this movement may be regulated so as to extend from two to eight inches. This cannot be seen in the above cut. These yokes are for sale by N. & J. Parrish, of Hamtramck, near this city.

Uncle John will have a hearing in the March number. Meanwhile we commend him to the structure of the Bee we lay before him this month; it is something that has never been done before.

## Wool.

We sincerely hope that our readers are at the present season paying more than ordinary attention to their sheep. The prospect now is that wool will bring remunerative prices, and from this month till shearing time, the feeding of sheep should not be stinted, and they should have as much protection and be kept as dry, both over head and under foot, as possible. In fact, from this time, all live stock should receive an increase of food, and that food should be of good quality. If good keeping will add fifty cents to the value of the fleece, at selling time, permitting quality and quantity both to be taken into consideration, on a flock of 100, the farmer gets \$50 for his work, and will besides be less liable to loss from disease and sickness. The results of the wool crop show that we are not raising as much wool as there is a demand for, even with the manufacturing establishments not fully at work, and that the increase in the production does not keep pace with the growth of the population and their wants. At present the rates in the eastern market are equal to 40 to 50 cents per pound for the several grades here.

**J. S. Tibbets, Esq.**, of Plymouth, to whose fine orchard and whose stock we have, on several occasions, called attention, informs us that he now offers his farm for sale. It is situated in one of the best wheat-growing towns in this State, and it is in fine cultivation, with ample orchards. Of these last Mr. Tibbets gave us a fair sample for Christmas. From these orchards Mr. Tibbets sold 2000 bushels of apples the past year, part of which brought him two dollars per barrel, delivered at the Wayne station for the Chicago market, and part of which he has been selling just previous to Christmas, at nine shillings per bushel. The varieties are Rambo, Giffiflower, Yellow Bellflower, Spitzenburgh, Rhode Island Greening, Wineapple, and several other like winter varieties. The fruit we can answer for as of the best quality, and the farm is as well located as any within the bounds of the State. In soil, water, and general qualities, it is all right.

**AT YPSILANTI.**—E. Samson, of Ypsilanti, whose stock of books and periodicals is well known in the vicinity, will receive and transmit to us subscriptions for the Michigan Farmer.

We received a letter from Mr. Freedom Monroe, of Romeo, last month, asking us to notice that he had invented what he calls the Bow, or propelling whiffletrees, a contrivance which is intended as an improvement of the common two horse gearing. The team draws by one chain, and does away with the whiffletrees behind, the gearing being in front of the team. As a good and useful harness, where orchards or gardens are to be plowed, Mr. Monroe claims it is very superior. He has applied for a patent, which he hopes to receive very soon.

**STOCK FOR SALE.**—The Hon. E. T. Throop, of Kalamazoo, has sent an advertisement which was received too late for the present number. By it we learn that he has sold the Springbrook Farm, and consequently offers for sale the stock, carriages, wagons and farming implements. Among the horses are two valuable Messenger mares, one of which named Phebe, is coming seven years old, and is out of a Messenger mare, and sired by the thorough bred horse Champion, from Long Island. This mare will be put up at \$400. A colt out of the other mare, by blood Sherman Black Hawk, will be put up at \$300. Two Sampson mares, sired by the imported horse "Honest John," of Palmyra, one five and the other three years old, will be put up at \$200 each. Mr. Throop will also offer a full blood Durham bull, two years old, three yoke of steers and oxen, and a number of cows, all carefully bred, mostly of Durham stock with a cross of Devon. The sale of this stock will take place about the latter part of March, but as yet the day is not decided upon.

**A USEFUL MILL.**—One of the handiest and best mills for a farmer's use, is that offered for sale by M. J. Cook, an advertisement of which is to be found on the cover of the Farmer. It takes up so little room, and can be run by such a light power, and at the same time, the quality of its work, whether in grinding feed, or in making a good quality of fine flour for family use, is so superior that it is a general favorite. It has been accorded more first premiums than any other mill of a like kind yet offered to the public. Its price also is such as to bring it within the reach of all who would like to keep their horse power doing something useful for their neighbors during the winter season. Our friend, Benjamin Fowle, of Moscow, run two of them with a water power last winter.

We call attention to Mr. Prince's advertisement. His nursery, at Flushing, L. I., is an extensive one.

J. T. Willson's communication relative to the Northern Muscadine Grape, and the new Gooseberry, is unavoidably postponed till our next number.

## The Markets and their Prospects.

During the past month the most business has been done in hogs, which have gone up in prices to a high figure. For a rate dressed hogs have sold here at 8½ cents per pound, and in some cases even a little over that mark has been reached. At the east hogs are wanted, and bring 7 to 7½ cents live weight. Mutton sheep are in request, and there are not many in market. They bring from \$3.50 to \$4.00 per head. Beef is but little changed though the rates tend upwards. Poultry is rather firmer in prices, and not quite so plenty. The grain and flour market is quite dull, nothing being done in any department of business except settling up. The late foreign advices seem to indicate that there is little prospect of an advance at present, or even during the spring. In relation to other articles, our table will give the market rates.

BREADSTUFFS AND GRAIN.		SEEDS, PLASTER, SALT, &c.	
Flour, bbl	\$5.00 a 6.00	Clover per bush.	\$6.50 a 7.00
Cornmeal, 100 lbs.	1.37½ a 1.50	" " " "	2.75 a 3.25
Buckwheat, 100 lbs.	3.50 a 4.00	" " " "	1.75 a 2.00
Wheat, bush.	20 a 12	Blue grass	3.00 a 3.50
Corn, bush.	0.60 a 0.70	" " " "	3.00 a 3.50
" " " "	0.40 a 0.42	Sandusky plaster, bbl.	1.15 a 1.25
Barley, per 100 lbs.	2.25 a 2.37½	" " " "	1.50 a 1.60
BEEF, MUTTON, &c.		MISCELLANEOUS.	
Beef on foot	\$3.50 a 4.50	Apples per bush.	62½ a 75
Beef dressed	5.00 a 6.00	White flax, half bbl.	4.50 a 5.00
Sheep, dressed per	100 lbs. 3 a 3½	White beans per bush.	2.00 a 2.50
Sheep on foot	2.25 a 2.50	" " " "	50 a 60
Hogs or lb 12½	per 100 lbs. 5.50	Sheep pelts	50 a 60
Turkeys	1.00 a 1.50	" " " "	9.00 a 10.00
Chickens, per	37½ a 0.50	Common	7.10 a 8.00
" " " "	37½ a 0.50	" " " "	20 a 25
Eggs per doz.	18 a 24	" " " "	62½ a 75
Butter, per lb.	20 a 22	" " " "	20 a 25
" do	17 a 19	" " " "	62½ a 75
Cheese per lb.	9 a 11	" " " "	20 a 25

**A HAMBLETONIAN COLT.**—Our readers will have noticed a horse named Hambletonian which has been advertised as owned by F. E. Eldred, of this city. A few days ago the former owner of him was in this city, taking one of his colts to Illinois, and whilst stopping here he was shown to us. This colt was five years old, of dark bay, standing full sixteen and a half hands high, with a very lofty carriage of the head, which was fine. He had a very powerful shoulder, well set, with strong and rather heavy limbs. His gait was a very square trot, with neat clean step, and no waste of action. His time would range from 3 to 3½ minutes. He is a very promising young animal.

**SHINGLE MACHINE.**—We call attention to the advertisement of a new patented Shingle Machine, which promises to be one of the best inventions yet contrived for manufacturing these articles. We have not yet seen it at work; but we call the attention of those who are interested in the business, to the machine, who will examine it for themselves.

**Col. L. G. Morris' shorthorn cow,** the celebrated Dutchess 66th, has given birth to a pair of heifer calves, which are mostly red in color. They were sired by the Duke of Gloster.

**A subscriber in Ionia** inquires how he can procure an individual right to the Gilmore Beehive. He can write to Mr. Smith, of Vermontville, Eaton county, whose advertisement he will find in this number of the Farmer. Mr. A. J. Cook is the general agent, but he has no regular post-office address that we know of.

**We recommend our readers to study what the advertisement of the Dollar Newspaper says,** and then subscribe for the Michigan Farmer. It sounds just as though it was written for us.

**John T. Blois, of Jonesville,** offers a large quantity of fine young peach trees, apple stocks, and other fruit trees, which we commend to the attention of those setting out orchards. The Osage Orange plants are valuable to those who desire to have a hedge within a short time.

**DRAIN TILE.**—Mr. John Daines, at his manufactory at Birmingham, has a large quantity of drain tile on hand, ready for sale. Now that sleighing is good, is the time to have tile bought and stored close to where the drains of next season are to be made.

**We commend to the attention of those who seek for good Devon cattle,** the advertisement of Chas. Betts, who offers some of this stock for sale. The pedigrees will be found in the Michigan Farmer.

**The continuation of the article on Entomology is delayed till next month,** for want of room, although it is all in type. The article on the Honey bee, however, will be found an ample apology for the delay.

**W. T. Newell, of Wayne,** will find a very good feeding rack in this number of the Farmer. It is one of the best plans we have ever seen, being lasting and easily made.

**The suggestion of C. Q. is noted for consideration.** So far as agricultural matters are concerned, we will endeavor to comply.

**MICHIGAN PATENTS.**—During the first week of January, patents were issued to Russell Gates, of Homer, for improvement in machine for upsetting tire; Henry S. Wentworth, of Napoleon, for improved self-regulator for wind mills; and to John W. Cannell, of Olivet, for improved form of carriage.

### Meteorological.

#### REVIEW OF THE WEATHER FOR OCTOBER, 1866.

BY L. WOODRUFF, ANN ARBOR.

Thermometer at.....	7 A. M.	2 P. M.	9 P. M.
Highest temp. in month.....	59° (22d)	81° (8 & 9)	64° (22d)
Lowest do do.....	23° (18th)	32° (30th)	26° (31st)
Average.....	40.7	59.3	46.1
Monthly mean.....	48.6		

#### MONTHLY VARIATIONS.

Greatest daily range.....	36 (19th)	Least.....	3 (30th)
Clear days.....	16	Part clear.....	1
Cloudy days.....	14		
Days on which rain fell.....	10		
Total amount of rain.....	1.912 inches.		

#### WINDS.

W., 2 days; N., 1 day; E., 2 days; S., 6 days; S. W., 10 days; N. W., none; N. E., 6 days; S. E., 4 days.

#### REMARKS.

Previous to the 2d, rain fell only in light and scattering showers, and most parts of the country suffered considerably from drought. After this date, however, the precipitation was more frequent and copious, more than two-thirds the total amount falling in the last ten days of the month. The temperature, though quite variable, ranged unusually high for the season.

There was lightning and thunder on six days, quite severe on the 5th and 22d. A period of low barometer occurred during the last days of September, and the 1st and 21 of this month; this was attended by violent storms in some of the eastern States, while there were strong indications of rain in this region.

#### REVIEW OF THE WEATHER FOR NOVEMBER, 1866.

BY L. WOODRUFF, ANN ARBOR.

Thermometer at.....	7 A. M.	2 P. M.	9 P. M.
Highest temp. in month.....	57° (4th)	59° (1st)	65° (3d)
Lowest do do.....	14° (19th)	30° (9th)	22° (5, 8, 19)
Average.....	29.8	41.6	35.0
Monthly mean.....	34.4		

#### MONTHLY VARIATIONS.

Greatest daily range.....	25 (20th)	Least.....	3 (16th)
Clear days.....	8	Part clear.....	2
Cloudy days.....	10		
Days on which rain fell.....	7		
Total amount of rain and melted snow.....	2.238 inches.		

#### WINDS.

W., 9 days; N., none; E., 2 days; S., 4 days; S. W., 7 days; N. W., 5 days; N. E., none; S. E., 3 days.

#### REMARKS.

Changes in temperature and atmospheric pressure were abrupt and frequent, and were accompanied, in most cases, by heavy storms. A violent and destructive gale from S. W., occurred on the evening of the 21st. It was preceded by a heavy storm of rain and a very sudden fall of the barometer. About five inches of snow fell during the month.

**A PERFUMED BREATH.**—What Lady or Gentleman would remain under the curse of disagreeable breath when by using the BALM OF A THOUSAND FLOWERS as a dentifrice would not only render it sweet but leave the teeth white as alabaster? Many persons do not know their breath is bad, and the subject is so delicate their friends will never mention it. Pour a single drop of the BALM on your tooth-brush and wash the teeth night and morning. A fifty cent bottle will last a year. A beautiful complexion may easily be acquired by using the Balm of a Thousand Flowers. It will remove tan, pimples, and freckles from the skin, leaving it of a soft and rosy hue. Wet a towel, pour on two or three drops and wash the face night and morning. Shaving made easy, wet your shaving-brush in either warm or cold water pour on two or three drops of Balm of a Thousand Flowers rub the beard well and it will make a beautiful soft lather much facilitating the operation of shaving. Price only Fifty cents.

Beware of counterfeits and imitations, none genuine unless signed by FETTERIDGE & CO., Proprietors, For sale by all druggists. not-5m New York.



## WEBSTER'S DICTIONARIES.

1. Webster's Unabridged,
2. Webster's Counting House,
3. Webster's Academic,
4. Webster's High School,
5. Webster's Primary,
6. Webster's Pocket.

## WEBSTER'S QUARTO DICTIONARY.

Contains three times the matter found in any other English Dictionary compiled in this country.

Ask for Webster's Quarto Unabridged. There is no edition of Webster's Unabridged Dictionary but this—none containing half the matter, the illustrative quotations, the etymologies, full definitions, &c.

"A Dictionary is the last book which a scholar ever wants to have abridged, the process being sure to cut off THE VERY MATTER WHICH HE MOST VALUES."—*Chronotype.*

JUST PUBLISHED:

## WEBSTER'S COUNTING HOUSE &amp; FAMILY DICTIONARY.

Being a Defining and Pronouncing Dictionary of the English Language. With Synonyms. Price, \$1.50.

Published by G. & C. MERRIAM, Springfield, Mass. Sold by all Booksellers.

## TO FARMERS AND GARDENERS.

THE Subscribers offer for sale 40,000 barrels of their

## NEW AND IMPROVED

## POUDRETTE.

Manufactured from the night-soil of New York city, in lots to suit purchasers. This article (greatly improved within the last two years) has been in the market for eighteen years, and still defies competition, as a manure for Corn and Garden Vegetables, being *cheaper, more powerful than any other*, and at the same time *free from disagreeable odor*. Two barrels (\$3 worth) will manure an acre of corn in the hill, will save two-thirds in labor, will cause it to come up quicker, to grow faster, ripen earlier, and will bring a larger crop on poor ground than any other fertilizer, and is also a preventative of the cut worm; also it does not injure the seed to be put in contact with it.

The L. M. Co. point to their long-standing reputation, and the large capital (\$100,000) invested in their business, as a guarantee that the article they make shall always be of such quality as to command a ready sale.

Price, delivered in the city free of charge and other expense—

One barrel.....	\$2 00
Two barrels.....	3 50
Five barrels.....	8 00
Six barrels.....	9 50

And at the rate of \$1.50 per barrel, for any quantity over six barrels.

A Pamphlet, containing every information, will be sent [free] to any one applying for the same. Our address is—

THE LODI MANUFACTURING CO.,  
Office, 60 Courtlandt street, New York.

feb 4t

## LYON'S KATHAIRON

HAS now become the standard preparation for the HAIR. Its immense sale, nearly

**1,000,000 BOTTLES!**

per year, attests its excellence and great superiority over all other articles of the kind. The Ladies universally pronounce the KATHAIRON to be, by far, the best and most agreeable article they ever used. It Restores the hair after it has fallen out; Invigorates and Beautifies it, giving it a rich glossy appearance, and imparts a delightful perfume. Sold by all dealers throughout the United States, Canada, Mexico, Cuba and South America, for

TWENTY-FIVE CENTS PER BOTTLE.

HEATH, WYNKOOP & Co., Proprietors.

63 Liberty street, New York.

Manufacturers, also, of Perfumery of all kinds, and in great variety.

feb 6m

## CHINESE POTATO, IMPERIAL WHITE.

THE same as exhibited by us at the Crystal Palace Fair, ours being the only ones of American growth—\$20 for 100, \$5 for 20, \$3 for 12. Imported tubers and root cuttings, of uncertain varieties, not guaranteed, \$65 per 1000, \$7 per 100, \$4 for \$0, \$2 for 25. With full treatise on culture. Orders for \$5 or under, cash—larger orders one-third cash and balance on delivery in the spring by express. Chinese Sugar Cane seed—packages of fresh seed for one-half acre, \$1, with directions. Earth Almond, \$1 for 50. Licorice—\$10 per 100, \$3 per dozen. Oiler scions—\$2 to \$5 per 1000. Lawton Blackberry—\$25 per 100, \$4 per dozen. Victoria and Linwood Blackberry—\$9 per 100. Madder—\$10 per 100. Giant Asparagus, \$4 to \$6 per 1000. King Phillips Corn, Orange Water Melon, with a most extensive collection of Vegetable, Flower, Agricultural, Tree and Shrub seeds in the Union, all warranted.

N. B. Printed Catalogues of Trees, Plants and Seeds will be sent to applicants.

feb 1t

WM. E. PRINCE & CO.,  
Flushing, N. Y.

## DOCTOR HOOFLAND'S

CELEBRATED

## GERMAN BITTERS,

PREPARED BY

Dr. C. M. JACKSON, Philad'a, Pa.

WILL EFFECTUALLY CURE

## LIVER COMPLAINT, DYSPEPSIA, JAUNDICE,

Chronic or Nervous Debility, Diseases of the Kidneys, and all diseases arising from a disordered Liver or Stomach.

Such

as Constipation,

Mon, Inward Piles,

Fullness or Blood to the

Head, Acidity of the Stomach,

Nausea, Heartburn, Disgust for Food,

Fullness or weight in the stomach, Sour

Eruptions, Sinking or Fluttering at the pit of

the Stomach, Swimming of the Head, Hurried and difficult

Breathing, Fluttering at the Heart, Cheaking or suffocating

sensations when in a lying posture, Dimness of Vision, Dots

of webs before the Sight, Fever and Bull Pain in the Head,

Deficiency of Perspiration, Yellowness of the Skin, and

Eyes, Pain in the Side, Back, Chest, Limbs, &c.

Sudden Flushes of Heat, Burning in the

Flesh, Constant Imaginings of

Evil and great De-

pression of

Spirits.

The proprietor is calling the attention of the public to this pre-

paration, does so with a feeling of the utmost confidence in its vir-

tures and adaptation to the diseases for which it is recommended.

It is no new and untried article but one that has stood the test

for ten years' trial before the American people, and its reputation

and sale is unrivalled by any similar preparations extant. The

testimony in its favor given by the most prominent and well known

Physicians and individuals in all parts of the country is immense

and a careful perusal of the Almanac, published annually by the

proprietor, and to be had gratis of any of his Agents, cannot but

satisfy the most skeptical that this remedy is readily deserving

the great celebrity it has obtained. Principal Office and Manufac-

tory. No. 96 Arch St., Philadelphia, Pa.

## GREAT CURE OF PILES.

CAMDEN, N. J., March 12, 1855.

DEAR SIR—It is with much pleasure I take this opportunity of informing you of the great benefit I have derived from the use of a few bottles of "Hoofland's German Bitters." For a number of years I have been sorely and severely afflicted with pain in the stomach, attended by attacks of the Piles, for which I tried a great many remedies, but without affording me any relief. Being advised to use the German Bitters, I did so, using in connection for the Piles, your *Spikenard Ointment*, and I now inform you that they have entirely cured me and resorted me to health, and I would advise all the afflicted to use your valuable medicines, &c.

Respectfully yours, MARGARET REFSHER.

No. 45 Plum Street, Camden, N. J.

Dr. C. M. Jackson, Philadelphia.

For sale by druggists and storekeepers in every town and village

in the U. S. and Canada.

Dec. 1855.—1 year.

## PENFIELDS' TOOL &amp; SEED DEPOT.

FARMERS call and look at our stock or Tools, Implements and Seeds.

Meat Cutters and Stuffers, Vegetable Cutters, Chain Pumps, Plows, Harrows, Burns, Cultivators, Cheese Presses, and an endless variety of Farming Implements, of the best manufacture, at

D. O. & W. S. PENFIELDS,

feb 6m No. 103 Woodward Avenue, Detroit.

## HORSE POWERS, THRESHERS AND CLEANERS.

PITTS 8 and 10 horse, Emery's 1 and 2 Horse (tread) Powers. Pease's Excelsior Powers, Corn and Cob Mills, Corn Mills and

Feed Mills, Flour Mills, Cross-cut and Circular Saw Mills, Leonard

Smith's Smut Machines. D. O. & W. S. PENFIELD,

feb 6m No. 103 Woodward Avenue, Detroit.

## BROOM CORN SEED. King Phillip, Flower, Early Dutton and

other varieties of SEED CORN, at PENFIELDS,

feb 6m 103 Woodward avenue.

## SHAKER SEEDS, PURE!

A COMPLETE and full assortment of their valuable and reliable Field and Garden Seeds, warranted of 1856 growth. Also,

Wisconsin, Illinois, Ohio and Michigan Timothy, Red Top, Clover and Millet, at

feb 6m 103 Woodward Avenue,

D. O. & W. S. PENFIELD.

## DRAIN TILE!

WE have constantly on hand all of Daines' Drain Tile.

feb 6m 103 Woodward Avenue,

D. O. & W. S. PENFIELD.



## SUBSCRIBE FOR THE DOLLAR NEWSPAPER. PHILADELPHIA.

**FARMERS \$1000-\$500-\$200 A YEAR!**—Farmers, do your annual expenses for labor, teams, seed, manure, &c., amount to even the smallest of the above sums? Would it not, then, be good policy to add a single FAMILY NEWSPAPER, which, besides containing FARMERS STORIES, POETRY, MARKET REPORTS, LETTERS, EDITORIALS, and ALL THE NEWS OF FARMERS THE WEEK, is largely occupied with the experiences of a great number of persons doing the same thing as FARMERS yourself? When you are putting in a crop, rearing an animal, planting an orchard, or doing any one of FARMERS the thousand things connected with farm work, would it not pay to know how others begin and carry on the FARMERS same operations?

It is truly said, "Every one can learn something from every one else—even a fool." If you consult a journal for twelve months, which contains during FARMERS that time over 500 articles, giving plain, practical accounts of what others find to be the best and most FARMERS profitable crop, animals, fruits, &c., the best modes of doing the various kinds of work, &c., is it not probable that you will get many hints, each worth dollars to you?

FARMERS THE DOLLAR NEWSPAPER is such a journal as this. Its Agricultural Department is wholly occupied with original articles, prepared by practical working men, who speak not from theory, but from FARMERS experience. It is also one of the very few perfectly independent journals of the country, having no connection with partisan politics or sectarian religion, nor with any manufacturers of manures or implements, or sellers of animals or trees. Having a large paying circulation, it stands upon its own basis, and FARMERS cannot afford to be outspoken on all subjects. It is, and will continue to be, in opposition to all agricultural FARMERS humbugs—cautions in reference to uncertain new things—and ready to set before its readers the real FARMERS claims of whatever is proved to be good and useful. This page could be filled with the statements of a multitude of readers, who have in years past derived their FARMERS hundreds of dollars of profit from hints in the pages of the "NEWSPAPER," and who have been saved by its warnings from the impositions of unscrupulous FARMERS speculators.

Every one who cultivates a single rod of ground FARMERS will find it a paying investment to supply himself or herself with the "DOLLAR NEWSPAPER." It will FARMERS cost but a dollar to try it for 1857, Vol. 15.

The new Volume begins about the 1st of January, FARMERS 1857, and with it will be commenced the great ORIGINAL NOVELETTE,

FARMERS entitled  
"MABEL, or DARKNESS AND DAWN."  
Written expressly for the "Newspaper," by C. J. Peterson, Esq., author of the celebrated story, "Kate FARMERS Aylesford," &c., &c.

The subscription price to single subscribers is only FARMERS ONE DOLLAR PER YEAR;

For \$5 six copies; for \$10 thirteen copies; for \$15 FARMERS twenty copies, and one extra to the editor up of the Club. Address, M. W. SWAIN & CO.,

FARMERS Proprietors and Publishers, Dollar Newspaper, feb1t Philadelphia.

### CHINESE SUGAR CANE SEED!

THE Subscribers have made arrangements for, and have now on hand a moderate supply of the seed of the above plant, well ripened, and may be relied on as GENUINE.

Plant in drills 4 feet by 18 inches.  
Enough to plant 1-6th acre, put up in strong linen packages, sent by mail, post paid, on the receipt of \$1, or a proportionate quantity by Express at purchaser's expense.

Order early to secure the seed.  
ALSO—A full assortment new and fresh Garden Seeds, imported and American growth.

FIELD SEEDS and GRAIN of the most desirable kinds  
Flower Seeds, the finest variety. Full Catalogues gratis on application.  
HENRY D. EMERY & CO.,  
Jan '57 2t No 204 Lake st., Chicago, Ill.

### CORN! SEED CORN!

MICHIGAN RED BLAZE, Long Island White, New England Yellow, King Philip, Adams Early Dent, and the Flour or Bread Corn, all early varieties, saved with care, pure, and warranted to grow! 12 cents per quart, \$1 per peck, \$5 per bushel, in sacks by Railroad or Express to any part of the country.

Also the genuine Mexican Potato, pure Poland Oats, Egyptian Skinless Barley, and Chili Potato at the same rate, and samples by mail for the postage!

Send current money or postage stamps, and full directions to  
D. D. TOOKER, Napoleon, Jackson co., Mich.  
Reference—Editor Michigan Farmer. Jan '57 1f

### TO YOUNG FARMERS.

NOW IS THE TIME FOR STUDY! Long evenings, stormy weather, leisure hours, should be diligently employed in studying your profession.

The following Books contain just the information you need.

NASH'S PROGRESSIVE FARMER..... 0 60  
NORTON'S ELEMENTS OF AGRICULTURE..... 0 60  
JOHNSTON'S AGRICULTURAL CHEMISTRY..... 1 25  
ALLEN'S BOOK OF THE FARM..... 1 00

Sent by mail, free of postage, on receipt of price.

C. M. SAXTON & CO.

feb1t Agricultural Book Publishers, 140, Fulton street, N. Y.

### PLEASE TO READ THIS!

TO PERSONS OUT OF EMPLOYMENT.—Wanted, persons in every town and village, to circulate new and useful Periodical Works. Book Agents, Farmers' Sons, everybody with a small cash capital, can make money by selling our books. Discount liberal. Catalogues and all letters sent free to applicants. For full particulars address, post paid, ROBERT SEARS, Publisher, No. 181 William-st., New York. feb4t

### DEVON CATTLE FOR SALE!

OWING to circumstances which require me to suspend farming operations, I now offer for sale several head of Devon cattle, consisting of COWS and BULL CALVES. I believe the pedigrees have all been published in the Michigan Farmer, and will be furnished to purchasers. Credit will be given for part of the price, if desired, on good security. My address is still, Burr Oak, St. Joseph co., Mich. feb1f CHAS. BETTS.

### A. B. & G. H. FELT,

WOULD call the attention of the public to their Manufacture of Agricultural Implements. We have constantly on hand, and made to order, wholesale and retail, Straw Cutters, Corn Shellers, Clover mills, Flows, of which the Peckskill is the favorite plow of York State, to plow from six to twelve inches deep; one and two horse Cultivators, Harrows, Road Scrapers, Long Saws, Mulley Saws, Saw Gumpers, Hand Drills, Tire Benders, Breast Wheel Gearing, for sawmills or gristmills, Well Curb and Buckets, Washing Machines, Sinks, Cauldrons, Kettles, fire pails and kettles, and all kinds of work in general.

Repairing done on short notice, and in the most workman-like manner. feb1t Brooklyn, Jackson Co., Mich.

### 20,000 APPLE SEEDLINGS!

ONE season's growth, second size, suitable to set for budding, but mostly too small for grafting at \$2.50 per 1000.

50,000 OSAGE ORANGE PLANTS,

3 years old, cut down annually. No. 1, EXTRA FINE, worth at least double of any yearlings usually sold at Chicago.

—also—

10,000 PEACH TREES—30 VARIETIES,

Together with an excellent assortment of Apple, Pear and Cherry Trees, Grapes, Strawberry Plants, &c., &c.

Orders accompanied with cash, will receive prompt attention.

### FOR SALE

A the JONESVILLE SOUTH NURSERY, Jonesville, Michigan. feb 2t JNO. T. BLOIS.

Nearly Ready—With Sugar Cane Seed Gratis. feb 2t

## CHINESE SUGAR CANE,

AND

### SUGAR-MAKING.

ITS HISTORY, CULTURE AND ADAPTATION TO THE SOIL, CLIMATE, AND ECONOMY OF THE UNITED STATES, with an account of various processes of Manufacturing

### SUGAR.

Drawn from authentic sources, by

CHARLES F. STANSBURY, A. M.,

Late Commissioner at the Exhibition of the Industry of all Nations at London.

Price Twenty-five Cents.

Published by C. M. SAXTON & CO., 140 Fulton-street, New York.

N. B.—To persons enclosing 25 cents, and a three-cent Postoffice stamp, to us, we will send the above book and Seed enough to plant two rods square. feb 1t C. M. SAXTON & CO., 149 Fulton-st., New-York.

### \$1,000 A YEAR.

WANTED—In every county in the United States, active, industrious, and enterprising men, as Agents for the sale, by subscription, of valuable and interesting Books; all of them being expressly adapted to the wants of every family, and containing nothing of a pernicious or injurious tendency.

Our publications are among the best in the country, and good Agents can realize a profit of from \$3 to \$5 a day by engaging in the business. A small capital of only \$50 to \$100 is required. For further and full particulars, address

LEARY & GETZ, Publishers, No. 133 North Second st., Philadelphia.

Jan 57-2t

## SHERMAN BLACK HAWK JUNIOR.

OWNED BY

**E. M. CRIPPEN, OF COLDWATER, BRANCH COUNTY,****WILL BE LIMITED IN HIS SERVICES DURING THIS SEASON,**

And will stand at the stable of the Subscriber, near the Depot of the M. S. R. R., in Coldwater, during the Fall.

**TERMS:—\$20 FOR THE SEASON, AND \$25 TO INSURE A COLT.**

✓ Sherman Black Hawk, jr., having made a part of his season along side of his Sire, at Bridport, is the reason he is now limited to a certain number of mares.

The following is the written opinion of the owners of his Sire, Sherman Black Hawk, and also of the principal breeders of Black Hawks in the State of Vermont:

We the undersigned, consider Young Sherman Black Hawk is second to no colt in this country of his age. He is making a fine form, substantial horse, he is a fast trotter, and is now capable, without training or preparation, of trotting his mile inside of three minutes, and as he increases in age his likeness to his celebrated Sire, becomes more and more striking.

E. BALDWIN, D. A. BENNETT, B. F. MYRICK, D. S. MYRICK, Z. MYRICK, G. S. GAL, WM. BRAISTED.

The Pedigree of Young Sherman Black Hawk is as follows: Young Sherman Black Hawk was bred at Bridport Vermont, by Wm. Braisted Esq., and was four years old on the 1st of June, 1856. He was sired by the widely known trotting stallion Sherman Black Hawk, who made his mile in 2.35, when not in train. The dam of Young Sherman was a large and powerful mare weighing 1100 pounds, sired by Pilgrim Morgan, he by Sir Jed, who was by Cock of the Rock, out of Duroc, by Imported Diomed. Cock of the Rock was full brother to the very celebrated Eclipse. The sire was Duroc, dam, Miller's Damsel by Imported Messenger. The pedigree of Sherman Black Hawk's sire, Old Black Hawk, it is unnecessary to state, as it is so well and universally known.

Description.—In form, Young Sherman Black Hawk is compact, and exceedingly muscular; while his fine head and large expressive eyes, clear, sinewy limbs, extended nostrils, capacious chest, round, barrel-shaped body, very broad loins, short back, long and muscular quarters, very deep and full flanks, velvet coat, and prominent blood

veins, give unmistakable evidence of the pure and high bred animal. In color he is coal black.

In temper and spirit he exhibits docility. For speed, in trotting, he has few, if any equals; in energy of character, and ease of action, he has no superior. He has sufficient blood of the pure racing stock, derived from the dam, through Cock of the Rock, to give him that lasting and untiring character to his trotting qualities, which makes him of unquestioned bottom.

In Bridport, Vermont, in the fall of 1855, he trotted on a clay track, a mile in three minutes, though then only three years old; and at the Vermont State fair, at Rutland, the same year, he did the same thing, and was awarded the first prize as the fastest three year old stallion in the State.

In general appearance, he resembles his sire, whether at rest or in motion; and if excellence in a compact form be a requisite in the best of stock getters, the young Sherman Black Hawk, is such a horse as deserves the attention of those rearing valuable colts.

aug:tf

E. M. CRIPPEN:

**Clarke's Female Pills.****THE GREAT ENGLISH REMEDY.**

Prepared from a Prescription of Sir John Clarke, M. D. Physician Extraordinary to the Queen.

THIS invaluable medicine is unfailing in the cure of all those painful and dangerous disorders to which the female constitution is subject. It moderates all excess and removes all obstructions and a speedy cure may be relied on.

**TO MARRIED LADIES**

it is particularly suited. It will, in a short time, bring on the monthly period with regularity.

Each bottle, Price One Dollar, bears the Government Stamp of Great Britain, to prevent counterfeits.

**Caution.**

These Pills should not be taken by females that are pregnant, during the first three months, as they are sure to bring on miscarriage; but as every other time and in every other case, they are perfectly safe.

Sole Agents for the United States and Canada, I. C. BALDWIN Co., (Late J. Bryan,) Rochester, N. Y.

TUTTLE & MOSES, Auburn, General Agents.  
For sale in Detroit by J. S. CUTHBERT & CO., FARRAND & WHEATON, T. & J. HINCHMAN, GEORGE B. DICKENSON & CO., E. C. TERRY, and in one Druggist Store in every town in the United States.

Oct. 1st, 1855. 6m

**PURE BRED STOCK FOR SALE.**

THOROUGH BRED DURHAM CATTLE, Pure Bred French Sheep, Pure Bred Spanish Sheep, and Pure Bred Essex Pigs and Suffolk Pigs. Apply to J. S. GOE, Tippecanoe, Fayette Co., Pa., 4½ miles East of Brownsville. April, 1856. ap 1y \*

**WM. WAGNER,**

MANUFACTURER and dealer in Ready Made Clothing. His assortment will always be found complete. Also, an assortment of Cloths, Cassimeres, Vestings, and Gentlemen's Furnishing Goods Custom Work and Cutting done to order. No. 11, Phoenix Block, Main street, Ann Arbor, Mich. just

**1856. FARMER'S WAREHOUSE. 1856****BURNHAMS & BURNALL,**

Dealers in all kinds of Agricultural Implements, Garden and Field Seeds, Salt, Plaster and Water Lime.

Warehs near Railroad Depot, BATTLE CREEK, MICH. [oct-tf]

SAMPLES of Australian and Tuscan Seed Wheat can be seen at our Store.

St

D. O. & W. S. PENFIELD,  
103 Woodward Avenue Detroit.

**VALUABLE FOWLS.**

COOK & HODGES; corner of St Aubin Avenue and Maple Street second block east of D. and M. R. R., Hamtramck, Mich. have for sale a choice selection of pure blooded fowls of the following varieties:

**WHITE SURRY DORKINGS,**

imported direct from England by T. D. NEWELL, of Rochester, N. Y.,

**BLACK SPANISH,**

from the best imported stock, and

**BRAMAH POOTRAS**

that cannot be surpassed for size or for their laying qualities. All of the above stock warranted true to their names. Eggs or chickens from any of the above breeds safely put up for transportation. All orders or letters of inquiry directed to COOK & HODGES Detroit, will receive prompt attention. E. COOK, July, '56, 1yr J. P. HODGES.

**TO SHEEP BREEDERS.**

FOR Sale five Rams, of the pure Cotswold Breed, from stock imported in 1853, at great expense, by Capt. Spencer Peel, selected from some of the best flocks in Gloucestershire, England. These Sheep took 1st Premiums at the Michigan State and Essex county Fairs, in 1854.

For price and particulars apply, post paid, to

PETER MENZIES, Amherstburgh, C. W.

Sept. '56 if

CLOVER HULLERS & CLEANERS, different patterns. D. O. & W. S. PENFIELD.

**HENRY E. DOWNER.**  
**WOOD ENGRAVER.**  
 No. 53 Woodward Ave., (Over Day's Exchange Office.)  
 DETROIT, MICH.

Engravings of Agricultural Implements, Views of Buildings, Animal Portraiture, Machinery, Vignettes, Bill Heads, Business Cards, Stamps, Seals, &c., &c. done on the shortest notice and in the best styles of the art, at New York charges.  
 P. O. address, Box 387. dec-tf.

**APPLE SEEDLINGS.**

**40,000** APPLE SEEDLINGS, SELECTED, SUITABLE for Root Grafting. 100,000 Apple Seedlings- suitable for Budding, **ALSO:** Fruit Trees, Ornamental Deciduous and Evergreen Trees, Shrubbery.

**Green House Plants,**

Currents, Gooseberries Raspberries, *Lauton Blackberries*, asparagus, and Pie plant roots, CELERY, can be supplied at all times during the winter on application to us, by letter, or at our nursery.  
 For Sale at wholesale and retail, by

HUBBARD & DAVIS.

Detroit, Dec. 1856-4t

**S. A. SPERRY.**

 **MANUFACTURER** of Carriages, Buggies and Waggon, which are constantly for sale. Painting and Trimming executed with dispatch. Also Blacksmithing in all its various branches. All articles of work done to order Shop on Detroit St., Ann Arbor, Michigan. jo '55:tf

**GILMORE'S PATENT**

**BEE HOUSE AND HIVE.**

PATENTED JUNE 5, 1849, PATENT EXPIRES JUNE 5, 1863.

**T**HE undersigned has purchased the right for the counties of Eaton, Calhoun, St. Joseph, Branch, Hillsdale, Lenawee, Monroe, and Saginaw. Offers individuals rights in those counties with Book of directions for building managing, &c., for \$5.00. This plan secures swarms from being robbed. Comb is renewed once in three years. Feeding facilities, unsurpassed. Bees swarm out or go from hive to hive at the will of the manager. Superior inducements to clubs for town rights. Agents wanted in every township.

Vermontville, April 10, 1856.

C. SMITH.  
 May, tf.

**A. GILMORE'S**

**PATENT BEE HOUSE AND HIVE:**

PATENTED JUNE 5TH, 1849.

**T**HE subscriber having purchased the right of GILMORE'S BEE HOUSE AND HIVE for the counties of

WAYNE, OAKLAND, AND MACOMB,

is now prepared to sell

**INDIVIDUAL RIGHTS**

with a book of instructions for building House and Hive, and the management of bees, for five dollars.

A liberal discount to clubs for town rights.

The plates and descriptions are plain, giving the length, width, and thickness of each piece of timber, so that any carpenter can build the house and hive from the book. With this Bee House and Hive, any individual can have the bees perfectly under his control, and obtain the surplus honey without the destruction of the bees.

A. M. BODWELL.

Ann Arbor, March 20, 1856.

N. B. Agents wanted for selling right in every town in the above counties.

April tf

**SCIONS**

**OF RARE AND VALUABLE VARIETIES!**

**T**HE Subscriber is prepared to furnish scions of nearly all the standard varieties of fruit, and also of many rare and promising sorts, cut from bearing trees, as follows, viz:

For net more than two or three scions of each variety, properly packed and sent by mail—for each variety ten cents, and postage added.

For one dozen scions of each variety, packed and sent as ordered—for each variety of Apple, ten cents; of Peas, Plums, or Cherries, twenty cents, with packing and charges added.

Larger quantities of the more common sorts at reduced rates.  
 Plymouth, Jan 37 3t T. T. LYON.

SEYMOUR'S GRAIN DRILLS and Broad Cast Sowers.

Sept:2t

D. O. & W. S. PENFIELD.

**STEEL CULTIVATOR TEETH.**

**T**HE subscriber having purchased the exclusive right of manufacturing and vending **D. B. ROGERS' Improved Steel Cultivator Teeth**, throughout the north half of the State of Indiana and all the State of Michigan, except the counties of Oakland, Lapeer, Genesee, Calhoun, Kalamazoo, and Hillsdale, now offers to supply his district with said Teeth, made of the best quality of spring steel, and in the latest improved shape.

These Teeth are too well known to need any certificates of their usefulness. They have taken the first premium at every State and County Fair wherever exhibited.

For sale in every principal city and village throughout the above named district.

The subscriber has also purchased the exclusive right of manufacturing and vending **D. B. ROGERS' IMPROVEMENT IN THE WHEEL CULTIVATOR**, throughout most of the States of Michigan and Indiana. At the Michigan State Fairs in 1853 and 1854, he exhibited one of these Machines, filled with steel teeth, and received the first premium and a diploma. This Machine, filled with Rogers' improved steel teeth, is considered by all farmers who have used them, to be the best Wheel Cultivator in use, not only for preparing summer fallows and putting in grain, but for the cultivation of corn when planted in drills.

No farmer will dispense with the use of the above named farming implements who has any knowledge of their usefulness.

All orders for Wheel Cultivators, or Cultivator Teeth, filled on short notice.

**CAUTION.**—All persons are prohibited the use of these Teeth and Machines, in said district, unless purchased of the subscriber or his duly authorized Agents. Address,

T. A. FLOWER,  
 PONTIAC, MICH.

April 1, 1856.

**THE EYES! THE EYES!!**

**DR. H. BIGELOW, OCULIST,**

(Office Room No. 9 Sheldon Block, opposite Farmers' & Mechanics Bank, Jefferson ave., Detroit, Mich.)

Respectfully announces to the public generally that he is now engaged in treating the various diseases of the Eye, with much success. Many Certificates and recommendations might here be given, but such things are so common at this day, that it is deemed sufficient merely to say to those afflicted, come and SEE. His treatment is the same as that practised by the late Dr. George Bigelow. May, '56 1yr.

**K**ETCHUM'S Patent Mowers, at Manufacturer's prices, adding freight, at Chicago Agricultural Warehouse and Seed Store. 204 Lake st., Chicago, Ill.

**TO INVALIDS**

**LABORING UNDER AFFECTIONS OF THE THROAT OR LUNGS.**

**DR. CALVIN M. FITCH;**

Formerly of 714 Broadway, N. Y., author of the invalid's Guide, Consumptive's Manual, &c., having recently returned from Europe, would inform his patients at the west, and all interested in the announcement, that he will open on the 1st day of July,

**PERMANENT OFFICE**

At No. 459 Main Street, Buffalo, N. Y. where he may be consulted daily, (Sabbath excepted) from nine to five, for **THROAT AND PULMONARY DISEASES**, more particularly **CONSUMPTION, ASTHMA AND CHRONIC BRONCHITIS**, in the treatment of which a judicious combination of Remedial measures, the employment of Mechanical and Constitutional Remedies, and of Medicinal and Sth nothropic Inhalations, give him a degree of success which can never attend a merely partial treatment of these Affections. Dr. FITCH may also be consulted for all derangements of the system preceding, or giving rise to Pulmonary Diseases, particularly **CATARRH, DYSPNOEA, COSTIVENESS, AND BILIAL COMPLAINTS**. Persons wishing to consult, but unable to visit Dr. FITCH, can do so by sending him a written statement of their case. A personal examination is however always preferable, as important symptoms are sometimes overlooked by the patient; and also as constant practice in consultation enables Dr. FITCH to determine the condition of the Lungs with great accuracy; thus of course enabling him more successfully to modify and adapt treatment to individual cases.

**CONSULTATIONS FREE.**

Dr. C. M. FITCH has associated with himself in practice Dr. J. W. SYKES, for a long time his assistant, a gentleman in whose professional ability he has the highest confidence; and he furthermore wishes it distinctly understood that he has no longer any professional connection with Dr. S. S. Fitch, but that communications will hereafter be addressed to

July, '56, 1 year  
 CALVIN M. FITCH, M. D.,  
 459 Main street, Buffalo, N. Y.

**HICKOK'S CIDER MILL.**

**A**n entire new, enlarged and improved machine.  
 Price \$40.  
 Sept:3t D. O. & W. S. PENFIELD.